SOIL SURVEY OF

Barnwell County, South Carolina, Eastern Part

United States Department of Agriculture
Soil Conservation Service
In cooperation with
South Carolina Agricultural Experiment Station and
South Carolina Land Resources Conservation Commission

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in the period 1967-72. Soil names and descriptions were approved in 1973. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1973. This survey was made cooperatively by the Soil Conservation Service, the South Carolina Agricultural Experiment Station, and the South Carolina Land Resources Conservation Commission. It is part of the technical assistance furnished to the Barnwell Soil and Water Conservation District.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms, ranches, and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, and recreation.

Locating Soils

All the soils of Barnwell County, Eastern Part, are shown on the detailed map at the back of this publication. This map consists of many sheets made from aerial photographs. Each sheet is numbered to correspond with a number on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbols. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information. This guide lists all the soils of the county in alphabetic order by map symbol and gives the capability classification of each. It also shows the page where each soil is described and the woodland group in which the soil has been placed.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be collored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the discussions of the capability units and woodland suitability groups.

Foresters and others can refer to the section "Woodland," where the soils of the county are grouped according to their suitability for trees.

Engineers and builders can find, under "Engineering Uses of the Soils," tables that contain test data, estimates of soil properties, and information about soil features that affect engineering practices.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers in Barnwell County, Eastern Part, may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given at the beginning of the publication and in the section "Additional Facts about the County."

Cover: Farm pond is on Lumbee loamy sand. Coastal bermudagrass pasture in background is on Blanton sand, 6 to 10 percent slopes.

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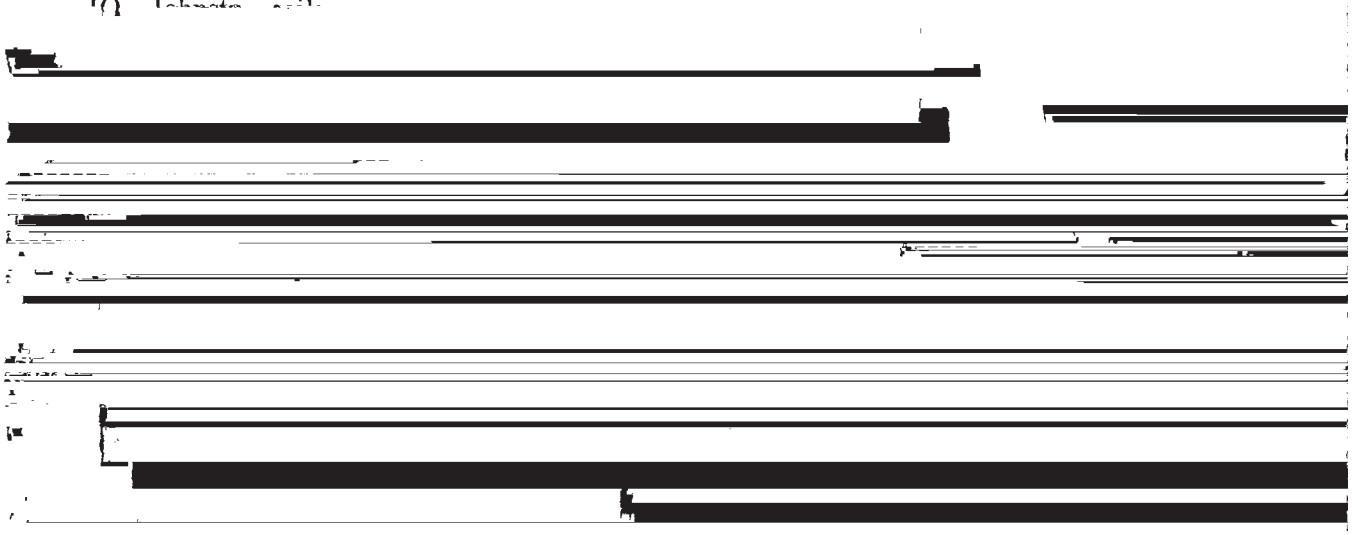


Summary of Tables

SOIL SURVEY OF BARNWELL COUNTY, SOUTH CAROLINA, EASTERN PART

BY VERGIL A. ROGERS, SOIL CONSERVATION SERVICE

SOILS SURVEYED BY VERGIL A. ROGERS, DANIEL D. MONTS, AND E. E. CROW, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE

CONSERVATION COMMISSION

of a soil phase indicates a feature that affects management. For example, Fuquay sand, 0 to 2 percent slopes, is one of several phases within the Fuquay series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a

current methods of use and management.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Barnwell County, Eastern Part. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another but in a different pattern.

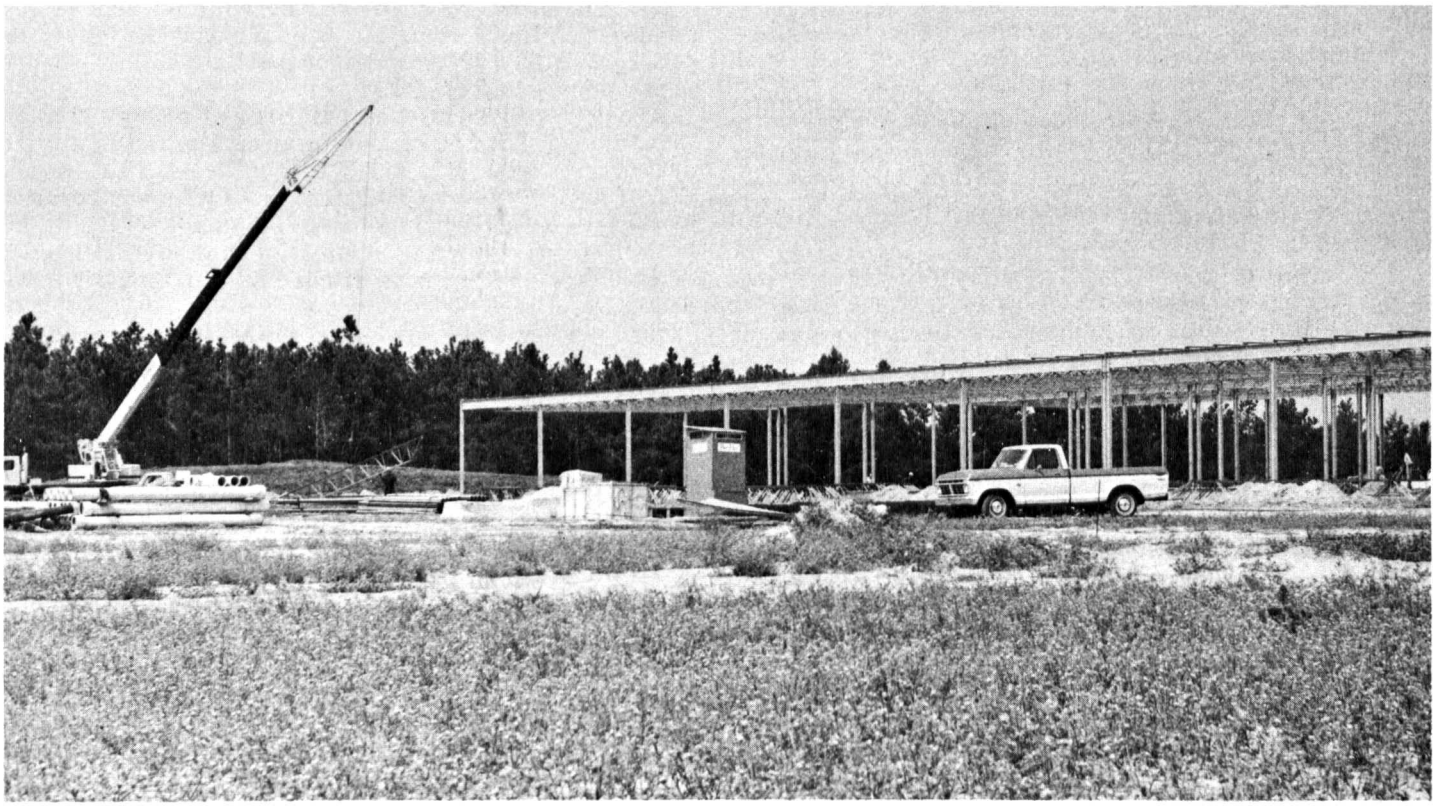
A map showing soil associations is useful to people who want a general idea of the soils in a survey area, who

The minor soils in this association are the poorly drained Plummer, Lumbee, and Rembert. These soils are in low, flat areas or in depressions. They are farther away from streams than the Johnston soils.

The soils in this association are wooded. Native trees include gum, cypress, and bottom-land hardwoods. Pine,

tion, Fuquay soils 22 percent, Dothan soils about 10 percent, and minor soils 45 percent.

Varina soils have a surface layer of dark grayish-brown loamy sand about 8 inches thick. The subsoil is yellowish-brown and brownish-yellow sandy clay that contains plinthite.



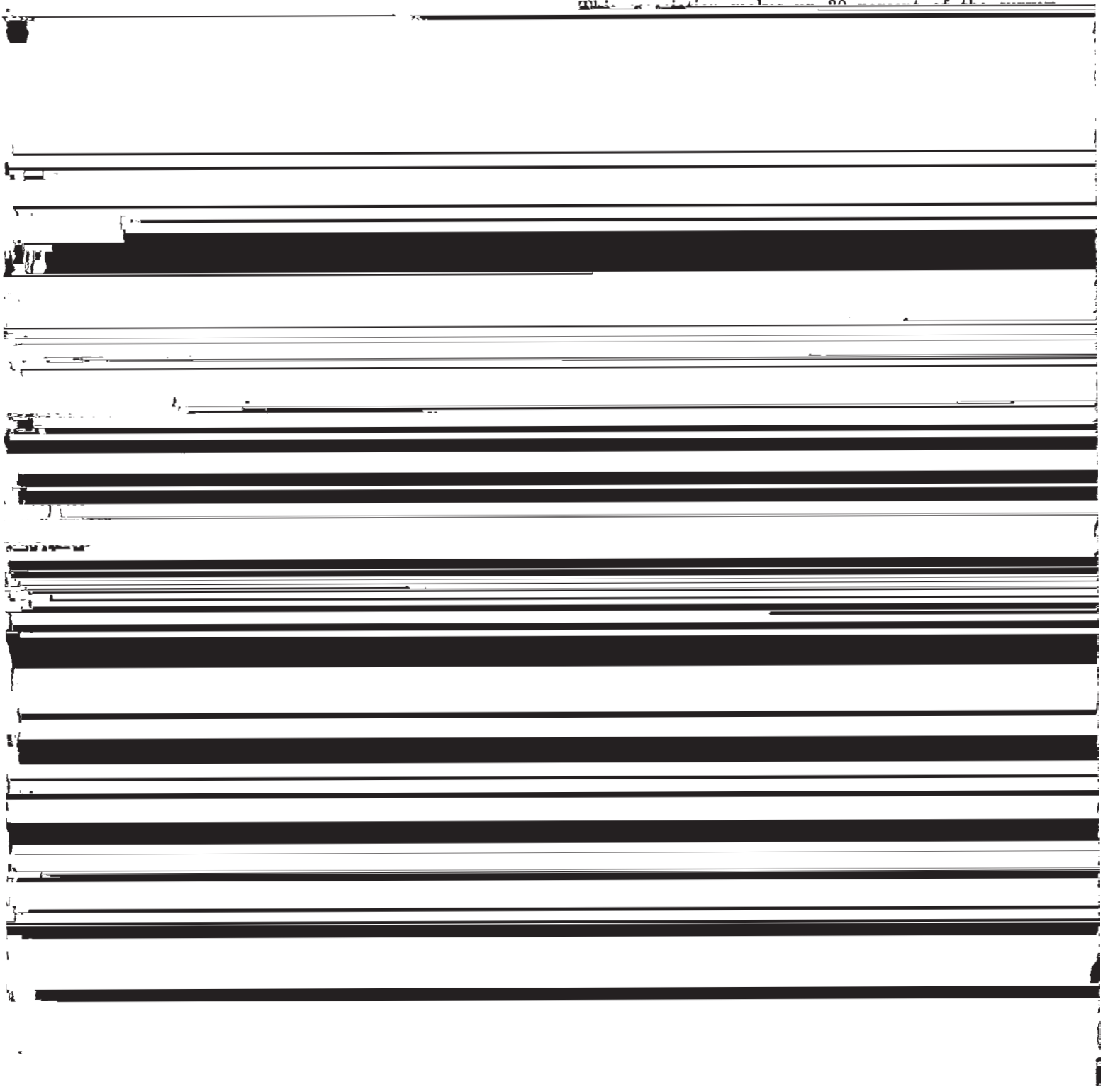
The major soils are well suited to most locally grown crops. The hazard of erosion is moderate on these soils. Conservation practices are needed in cultivated fields.

In places good pond sites are available for stock water and recreation. These soils are generally suited to quail, dove, and rabbit habitats. The association is suited to pine trees; however, some windthrow can be expected where root development is restricted.

4. Fuquay-Blanton-Dothan Association

Nearly level to sloping, well-drained soils that have a sandy surface layer and a loamy subsoil

This association is in the eastern, central, and southern part of the survey area. The plains of this association are dissected by a few small drainageways that originate within the area. These drainageways have short, sloping sides and narrow bottoms.



subject to frequent ponding if adequate drainage is not

upper part and slow in the lower part. Surface runoff is slow.

Representative profile of Ailey sand, 6 to 10 percent slopes, about 6 miles southeast of Barnwell city limits on county road 58, and about 100 yards east of Hercules Creek near intersection of county roads 57 and 58:

Ap—0 to 5 inches, grayish-brown (10YR 5/2) sand; weak, fine, granular structure; very friable; many fine and few medium roots; medium acid; clear, smooth boundary.

A2—5 to 30 inches, very pale brown (10YR 7/4) sand; structureless; loose; few medium roots; few quartz pebbles; strongly acid; clear, wavy boundary.

B2t—30 to 41 inches, strong-brown (7.5YR 5/6) sandy clay loam; common, medium, distinct, yellowish-brown (10YR 5/8) and few, fine, distinct, yellowish-red mottles; moderate, medium, subangular blocky structure; friable; thin patchy clay films on ped faces; few fine and medium roots; few quartz pebbles; very strongly acid; abrupt, wavy boundary.

Bx1—41 to 51 inches, mottled yellowish-red (5YR 5/6) and light yellowish-brown (10YR 6/4) sandy clay loam; weak, coarse, subangular blocky structure; firm, cemented and brittle; few clay flows in cracks; few medium roots in upper part; strongly acid; gradual, wavy boundary.

Bx2—51 to 64 inches, reddish-yellow (7.5YR 6/8) sandy clay loam; many, medium, distinct, yellowish-red (5YR 5/6) and few, medium, distinct, brownish-yellow (10YR 6/6) mottles; massive; firm, cemented and brittle; 3 percent coarse quartz grains; strongly acid; gradual, wavy boundary.

B3—64 to 74 inches, mottled red (2.5YR 5/6), light-gray (10YR 7/2), brownish-yellow (10YR 6/6), and reddish-yellow (7.5YR 6/6) sandy clay loam; massive; firm; few quartz pebbles; very strongly acid.

The solum is more than 60 inches thick. Depth to the [illegible]

are cotton, soybeans, and corn. Bahiagrass and Coastal bermudagrass are used for permanent pasture.

Because the thick sandy surface layer has a low capacity to hold water, this soil is droughty. Erosion is a hazard where the soil is used for row crops. A cropping system that includes grasses and legumes or small grain most of the time is needed to help control erosion and maintain organic matter. Use of terraces, vegetated waterways, contour tillage, and crop residue also helps to control erosion. Windthrow of pines occurs due to poor root penetration in the fragipan. Capability unit IVs–2; woodland suitability group 4s2.

Ailey sand, 10 to 15 percent slopes (AeD).—This moderately steep soil is on short breaks of major drainageways.

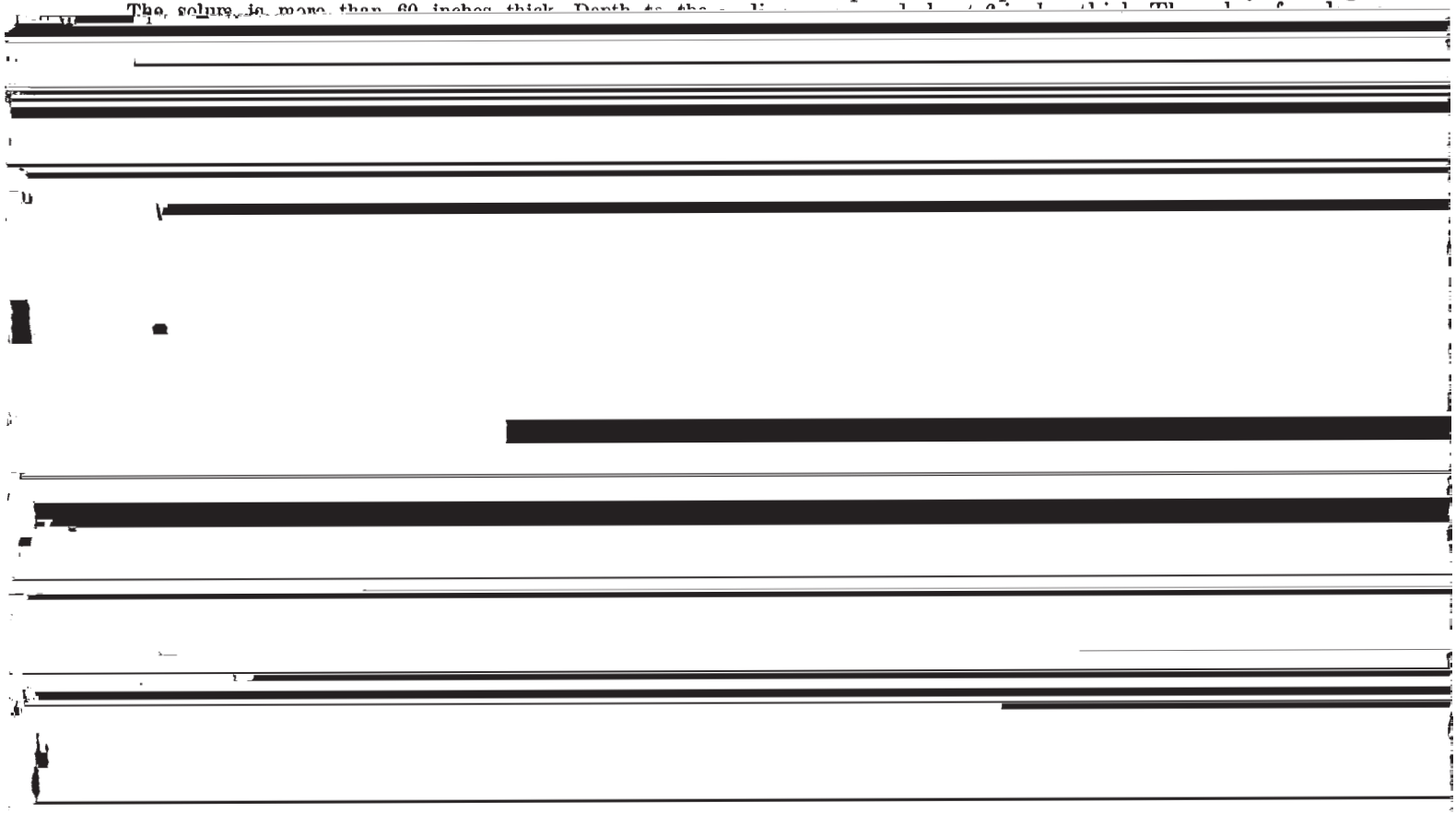
Included with this soil in mapping are small areas of Blanton and Vaucluse soils. Also included are very small areas that are 5 to 10 percent plinthite in the subsoil, some areas with gullies 1 to 5 feet deep, and small areas at the heads of gullies where the surface layer is generally sandy loam or sandy clay loam.

Most of this soil is in pine trees or pasture of Coastal bermudagrass. Because of the slope and thick, sandy surface layer, this soil is seldom cultivated. Capability unit VIe–1; woodland suitability group 4s2.

Blanton Series

The Blanton series consists of deep, well-drained soils. These soils formed in loamy Coastal Plain sediment.

In a representative profile the surface layer is light



The solum is 70 to more than 100 inches thick. The soil material is strongly acid or very strongly acid below the A horizon.

Thickness of the A horizon ranges from 40 to 70 inches. The A1 or Ap horizon is light olive gray, very dark grayish brown, grayish brown, dark grayish brown, dark yellowish brown, or brown. It is 4 to 10 inches thick. The very dark grayish brown color is in A1 horizons 4 to 6 inches thick. The A2 horizon is pale-yellow, pale-brown, very pale brown, or light yellowish-brown sand or loamy sand 36 to 60 inches thick.

The Bt horizon is yellowish-brown or brownish-yellow sandy clay loam or sandy loam. The Bt horizon extends to a depth of 80 inches or more. In places the soil material is 3 to 10 percent plinthite below a depth of 60 to 80 inches.

Blanton soils occur with Fuquay, Lakeland, and Dothan soils. They have a thicker sandy A horizon than Fuquay or Dothan soils. Blanton soils have a sandy clay loam or sandy loam B horizon at a depth of 40 to 70 inches, but Lakeland soils are sand throughout and lack a B horizon.

Blanton sand, 0 to 6 percent slopes (BaB).—This nearly level to gently sloping soil has the profile described as representative for the series.

Included with this soil in mapping are areas of Fuquay and Lakeland soils. Also included in some areas are soils that have a strong-brown or yellowish-red subsoil. In a few areas, 1 to 3 acres in size, the subsoil is 5 to 10 percent plinthite. In a few other small areas near slope breaks, a hard brittle layer is below a depth of 30 to 50 inches.

About 50 percent of the total area of this soil is wooded. The rest is in pasture, idle, or cultivated. The principal crops are Coastal bermudagrass (fig. 3), bahiagrass, watermelons, and soybeans. Pine trees have been planted on many of the areas.

This is a droughty soil. Controlling soil blowing and maintaining organic matter are management concerns when cultivating this soil. Rapid leaching of plant nutrients makes split applications of fertilizer essential. Wind stripcropping, cover crops, and cropping sequences that very frequently include crops of perennial grasses and legumes are needed to control erosion and replenish organic matter. Wind stripcropping and windbreaks are needed to control soil blowing on the cultivated ridgetops. Capability unit IIIs–1; woodland suitability group 3s2.

Blanton sand, 6 to 10 percent slopes (BaC).—This sloping or rolling soil is on narrow, high ridges and long, narrow areas parallel to streams and drainageways. Included in mapping are medium-sized areas of Fuquay and Lakeland soils and small areas of soils that have a fragipan in the subsoil.

About 80 percent of this soil is wooded. About 10 percent is cultivated, and the rest is idle or in pasture. Cultivated crops are watermelons, corn, and soybeans. Coastal bermudagrass and bahiagrass are grown for grazing and hay.

This is a droughty soil. Most plants that have a shallow root system do very poorly on this soil. Because of its rolling slopes this soil is less adaptable to row crops than the gently sloping Blanton soils. Intensive combina-

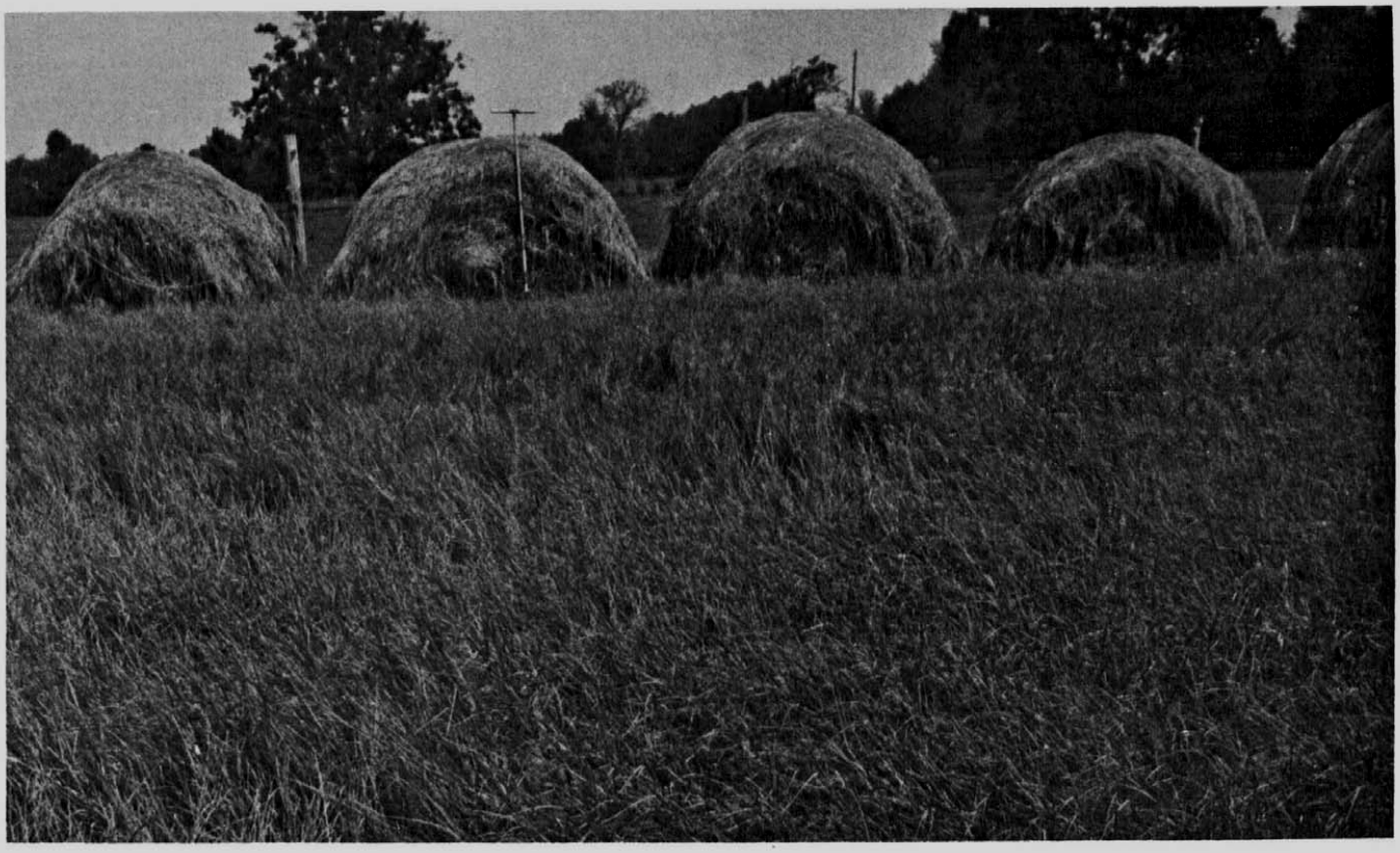


Figure 3.—**Coastal bermudagrass is excellent for hay and grazing on Blanton sand, 0 to 6 percent slopes.**

tions of stripcropping and perennial vegetation are essential when cultivating this soil. Capability unit IVe–1; woodland suitability group 3s2.

Clarendon Series

The Clarendon series consists of deep, moderately well drained soils on flats and around the rims of bays. These soils formed in loamy Coastal Plain sediment.

In a representative profile the surface layer is light brownish-gray loamy sand about 7 inches thick. The subsoil extends to a depth of 72 inches. In sequence from the top, it is 6 inches of light-yellowish-brown sandy loam; 17 inches of light yellowish-brown sandy clay loam that has reddish-yellow and gray mottles; 25 inches of mottled, yellowish-brown, pale-brown, and light-gray sandy clay loam that contains plinthite; and 17 inches of gray sandy clay loam that has reddish-yellow mottles.

Content of organic matter and available water capacity are moderate in Clarendon soils. Permeability is moderately rapid in the surface layer, moderate in the upper part of the subsoil, and moderately slow in the lower part of the subsoil. Runoff is slow.

A representative profile of Clarendon loamy sand, 1.2 miles east of Edisto Station Headquarters and 800 feet south of large bay:

Ap—0 to 7 inches, light brownish-gray (10YR 6/2) loamy sand; weak, fine, granular structure; very friable; common fine roots; few fine holes; strongly acid; clear, smooth boundary.

B1—7 to 13 inches, light yellowish-brown (10YR 6/4) sandy loam; weak, fine, subangular blocky structure; very friable; common fine roots; very strongly acid; gradual, wavy boundary.

B21t—13 to 30 inches, light yellowish-brown (10YR 6/4) sandy clay loam; common, medium, distinct, reddish-yellow (7.5YR 6/8) mottles and few, fine, faint, light-gray mottles; moderate, medium, subangular blocky structure; friable; thin, patchy, faint clay films on faces of peds; few fine holes and pores; very strongly acid; gradual, wavy boundary.

depth of 30 to 40 inches this horizon is 5 to 20 percent plinthite.

Clarendon soils occur with Dothan, Varina, Dunbar, Rembert, McColl, and Lumbee soils. They are not so well drained as Dothan and Varina soils, and they have less clay in the B horizon than Dunbar soils. Clarendon soils are better drained than Rembert, McColl, and Lumbee.

Clarendon loamy sand (Cd).—This nearly level soil is in small depressions. Included in mapping are small areas of Dunbar, Duplin, Lumbee, McColl, Pelham, Dothan, Fuquay, and Varina soils.

Most areas of this Clarendon soil have been cleared and cultivated. Because of its low position in the landscape, this soil is subject to flash flooding. Also, a seasonal high water table is present 2 to 4 months of most years.

Open ditches and tile drains, or a combination of the two, are used to drain this soil. It may be farmed intensively year after year. If this soil is drained, maintaining an adequate content of organic matter becomes more important but also more difficult. Capability unit IIw–2; woodland suitability group 2w8.

Dothan Series

The Dothan series consists of deep, well-drained soils on uplands. These soils formed in loamy Coastal Plain sediment.

In a representative profile the surface layer is grayish-brown loamy sand about 7 inches thick. The subsurface layer is light yellowish-brown sand about 4 inches thick. The upper part of the subsoil, to a depth of 33 inches, is yellowish-brown sandy loam about 5 inches thick, and yellowish-brown sandy clay loam about 17 inches thick. The lower part, extending to a depth of 70 inches, is yellowish brown and strong-brown sandy clay loam that contains plinthite.

Content of organic matter is low in Dothan soils. Available water capacity is moderate. Permeability is moderate in the upper part of the subsoil and moderately slow in

tinuous clay films; few fine roots; few fine pores; about 20 percent plinthite and 5 percent hard ironstone nodules; strongly acid; gradual, wavy boundary.

B23t—50 to 70 inches, strong-brown (7.5YR 5/8) sandy clay loam; many, coarse, distinct, yellowish-red (5YR 4/6) mottles; few, fine, distinct, red mottles; and common, medium, prominent, light-gray (10YR 7/1) mottles; weak, coarse, subangular blocky structure; firm; thin, patchy clay films; common fine pores; about 25 percent plinthite and 5 percent ironstone nodules; few quartz gravel 2 to 15 millimeters in diameter; very strongly acid.

The solum is more than 60 inches thick. The soil material is strongly acid or very strongly acid below the A horizon.

Most of the total area of this soil has been cultivated. The principal crops are soybeans (fig. 4), cotton, corn, and peanuts. Coastal bermudagrass and bahiagrass are grown for hay and grazing. Trees and other deep-rooted crops fail to produce proper root systems in the layers with concentrated plinthite.

Erosion is the chief hazard when cultivating this soil. Contour tillage, stripcropping, terraces, grassed waterways, and cropping sequences that include sod crops are some of the conservation practices that will aid in controlling erosion. Crop residue kept on or near the surface increases infiltration of water, adds organic matter, and reduces the hazard of erosion. Capability unit IIe–

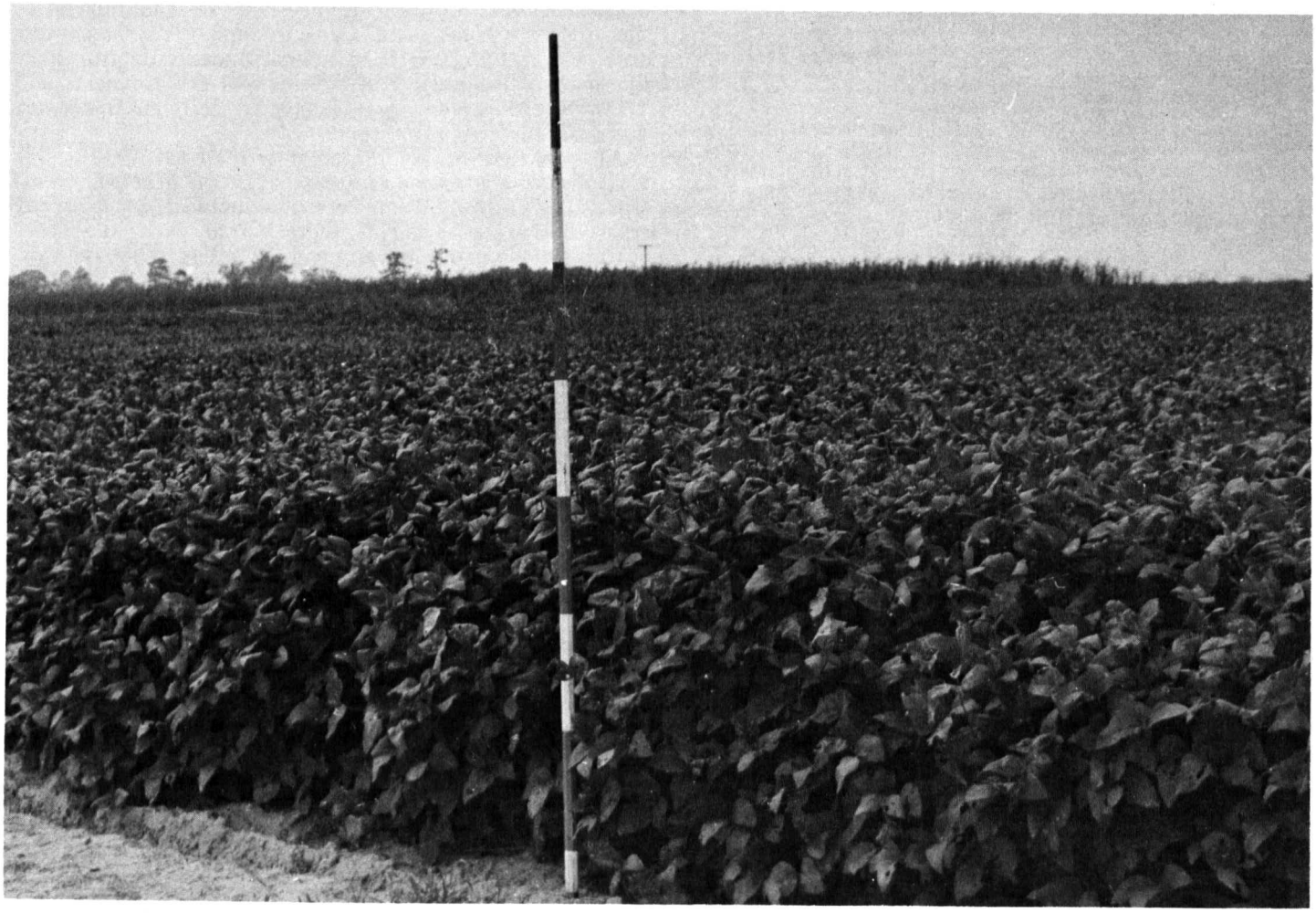


Figure 4.—Soybeans grow well on Dothan loamy sand, 2 to 6 percent slopes.

B22tg—21 to 45 inches, light brownish-gray (2.5Y 6/2) clay; common, fine and medium, distinct, strong-brown (7.5YR 5/6) mottles and common, fine, prominent, gray, red, and yellowish-brown mottles; moderate, fine and medium, subangular blocky structure; firm, hard; few fine roots, holes, and pores; thin patchy clay films; strongly acid; gradual, wavy boundary.

B3g—45 to 60 inches, gray (10YR 6/1) clay; many, fine and medium, prominent, red (2.5YR 4/6) and strong-brown (7.5YR 5/6) mottles; moderate, fine and medium, subangular blocky structure; firm, plastic, hard; strongly acid.

The solum is more than 60 inches thick. The soil material is strongly acid or very strongly acid below the A horizon.

The A horizon is 5 to 12 inches thick. It is dark gray, dark grayish brown, gray, and grayish brown.

The B1 horizon, where present, is sandy loam or sandy clay loam 2 to 6 inches thick. It is pale brown, light yellowish brown, yellowish brown, and strong brown and has mottles of light brownish gray, gray, or light gray.

[redacted]

these soils is higher than that of the defined range for the series, but this has little effect on the usefulness or behavior of the soils.

Dunbar soils occur with Clarendon, McColl, and Rembert soils. They are more poorly drained than Clarendon soils and better drained than McColl or Rembert soils.

Dunbar sandy loam (Db).—This nearly level soil is in depressions or low, flat areas.

Included with this soil in mapping are small areas of Clarendon, Duplin, and Dothan soils. Also included are small areas of Rembert, McColl and Lumbee soils that are more poorly drained than this soil and medium-sized areas where the surface layer of the soil is loamy sand.

About 80 percent of the total area of this soil is cultivated. The rest is pastured or wooded. The principal crops are soybeans, corn, and truck crops.

Installing and maintaining an adequate drainage sys-

Duplin Series

The Duplin series consists of deep, moderately well drained soils on uplands. These soils formed in clayey Coastal Plain sediment.

In a representative profile the surface layer is dark-gray sandy loam 8 inches thick. The subsoil extends to a depth of 72 inches. In sequence from the top, it is 17 inches of yellowish-brown sandy clay, 15 inches of light yellowish-brown clay, and 32 inches of gray clay.

Content of organic matter of Duplin soils is low, available water capacity is moderate, and permeability is moderately slow. Runoff is slow.

Representative profile of Duplin sandy loam, 0 to 2 percent slopes, in a cultivated field 3½ miles southwest of Blackville, 1 mile west of Barnwell State Park, and 30 feet north of dirt road:

Ap—0 to 8 inches, dark-gray (10YR 4/1) sandy loam; weak, fine, granular structure; many fine roots; medium acid; abrupt, smooth boundary.

B21t—8 to 25 inches, yellowish-brown (10YR 5/4) sandy clay; moderate, medium, subangular blocky structure; hard, firm, sticky; patchy distinct clay films on faces of peds; complete prominent clay films in wormholes and root cavities; many fine roots and pores; material from surface layer along vertical and horizontal faces of peds in upper part of horizon; strongly acid; clear, wavy boundary.

B22t—25 to 33 inches, light yellowish-brown (10YR 6/4) clay; many, fine and medium, prominent, yellowish-brown

drained than this soil. Also included are small areas of such better drained soils as Dothan and Varina, a few areas where the soil has sufficient plinthite or fragipan-like material to restrict maximum root development, and a few medium-sized areas where the soil has a surface layer of loamy sand or sand.

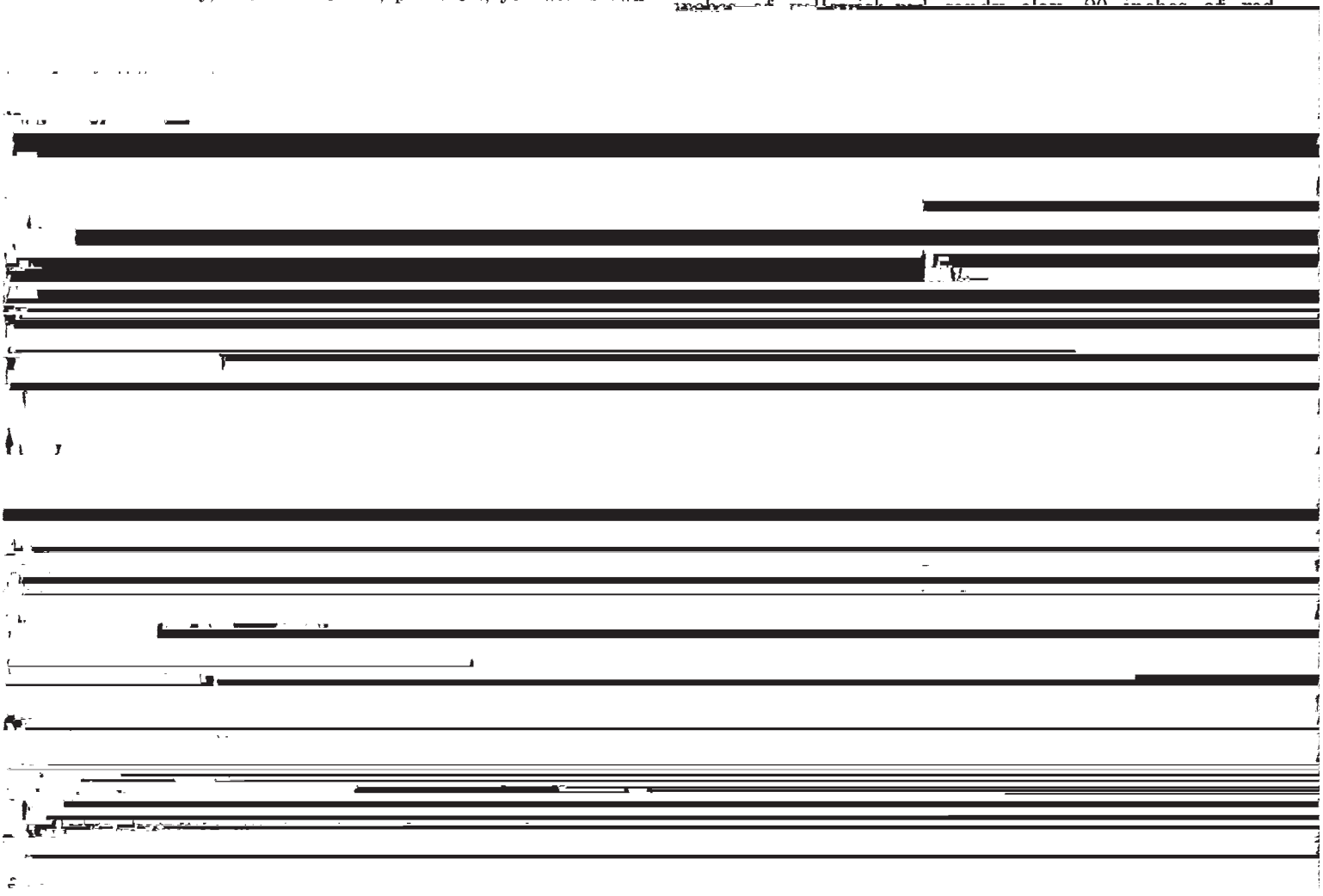
About 90 percent of the total area of this soil is cultivated or pastured, and 10 percent is wooded. The principal crops are soybeans, corn, cotton, and a variety of truck crops.

Installing and maintaining an adequate drainage system is the chief management concern. Open ditches, tile, or a combination of the two are used to remove excess water from this soil. If properly drained, this soil can be planted in row crops each year. A green-manure crop such as rye should be plowed under to replace organic matter. Capability unit IIw–5; woodland suitability group 2w8.

Faceville Series

The Faceville series consists of deep, well-drained soils on uplands. These soils formed in clayey Coastal Plain sediment.

In a representative profile the surface layer is grayish-brown loamy sand 7 inches thick. The subsoil extends to a depth of 72 inches. In sequence from the top, it is 23 inches of [illegible]



dish-brown, reddish-brown, red, or light-red sandy loam or sandy clay loam.

Faceville soils occur with Dothan, Fuquay, and Varina soils. They have more clay in the B horizon than Dothan or Fuquay soils and lack the plinthite of Varina soils.

Faceville loamy sand, 2 to 6 percent slopes (FaB).—This gently sloping soil is on high ridgetops. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of

cultivated field about 400 feet northeast of county roads 116 and 191:

Ap—0 to 10 inches, grayish-brown (10YR 5/2) sand; weak, fine, granular structure; loose; few fine roots; strongly acid; abrupt, wavy boundary.

A2—10 to 22 inches, light yellowish-brown (2.5Y 6/4) sand; structureless; loose; strongly acid; gradual, wavy boundary.

B1—22 to 34 inches, yellowish-brown (10YR 5/6) sandy loam;

plinthite in the subsoil. It has the profile described as representative of the series.

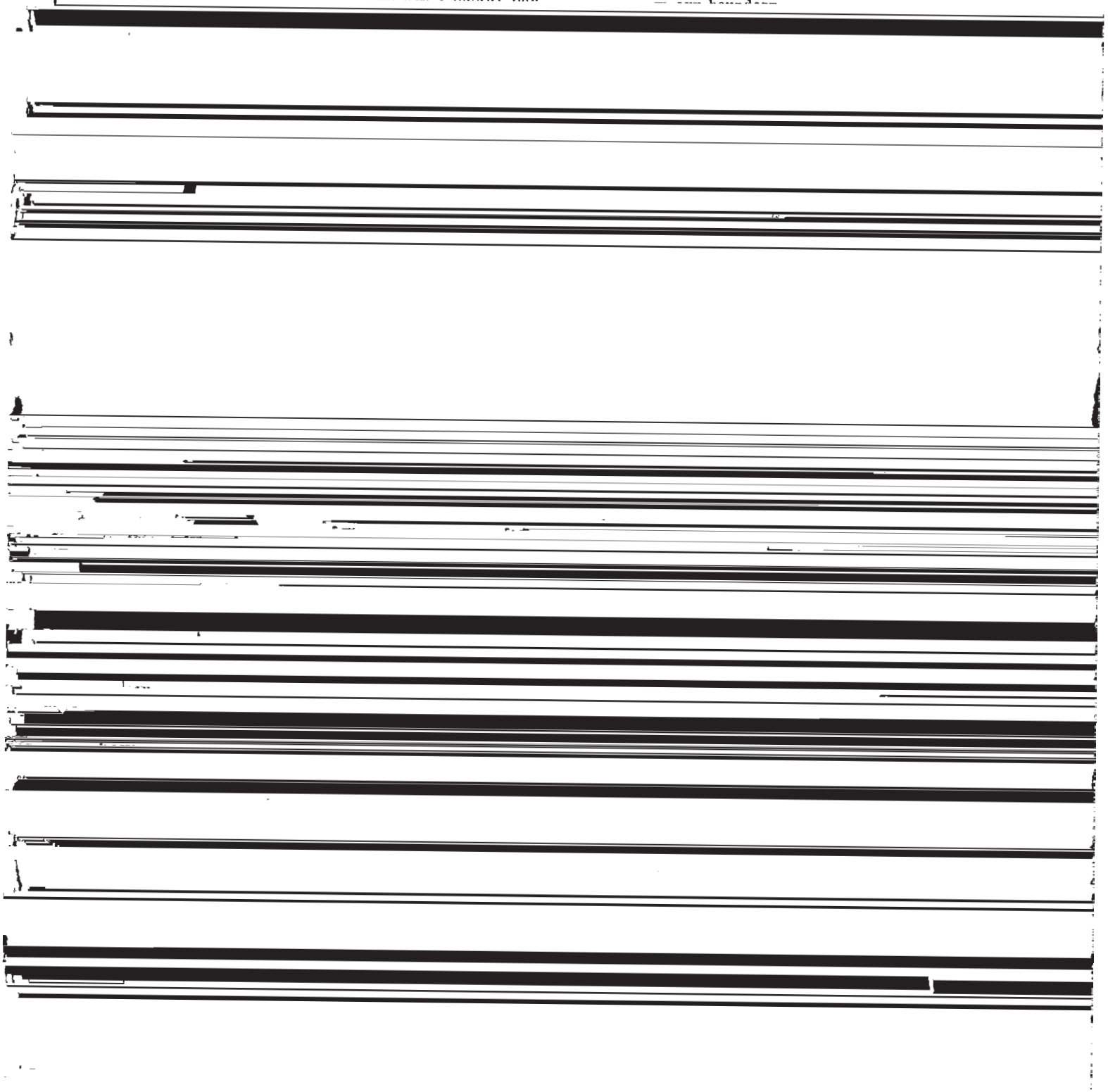
Included with this soil in mapping are small areas of Dothan, Blanton, and Ailey soils. Also included are medium-sized areas where the surface layer is loamy sand and small areas where it is sandy loam.

Much of this soil is cultivated. The rest is pastured or wooded. The principal crops are cotton, soybeans, corn, and peanuts. The chief pasture grasses are Coastal ber-

limits, 0.4 mile southwest on County Road 20, and 200 feet northwest on flood plain of the Salkehatchie River.

A11—0 to 28 inches, black (10YR 2/1) mucky loam that is 10 percent organic matter; structureless; very friable; many, fine, medium, and large roots; very strongly acid; gradual, wavy boundary.

A12—28 to 38 inches, very dark gray (10YR 3/1) sandy loam; structureless; very friable; common medium roots; stratified sand pockets; very strongly acid; gradual,



C1—5 to 9 inches, yellowish-brown (10YR 5/4) sand; structureless; loose; strongly acid; gradual, wavy boundary.
C2—9 to 48 inches, light yellowish-brown (10YR 6/4) sand; structureless; loose; few fine and large roots; most sand grains coated; very strongly acid; gradual, wavy boundary.
C3—48 to 60 inches, pale-yellow (2.5Y 7/4) sand; structure-

drained. These soils formed in bays and oval depressions in loamy Coastal Plain sediment.

In a representative profile the surface layer is black loamy sand about 3 inches thick. The subsurface layer is very dark gray and dark-gray loamy sand 5 inches thick. The subsoil is about 28 inches thick. In sequence from the top, it is 5 inches of light brownish-gray sandy loam, 17

Lumbee loamy sand (Lu).—This nearly level soil is in depressions. Included in mapping are small areas of Pelham, Rembert, McColl, Plummer, and Dunbar soils. Also included are very small areas of Clarendon soils on the outside edge of some depressions.

About 75 percent of the total [illegible] of this soil is

The Ap or A1 horizon is 5 to 8 inches thick. It is very dark gray, very dark grayish brown, black, or dark gray.

The B2t horizon is 6 to 25 inches thick. It is gray, light-gray, light brownish-gray, grayish-brown, or dark-gray sandy clay or clay.

The Bx horizon is 8 to 30 inches thick. It is mottled, yellowish-brown, gray, red, strong-brown, light yellowish

Figure 5.—A small area of McColl loam was excavated for this pond.

B21t—10 to 26 inches, yellowish-red (5YR 4/6) sandy clay loam; moderate, medium, subangular blocky structure; friable; thin, patchy, faint clay films on faces of peds; common fine roots; strongly acid; clear, smooth boundary.

B22t—26 to 35 inches, yellowish-red (5YR 4/8) sandy clay loam; few, fine, faint, red mottles; moderate, medium, subangular blocky structure; friable; thin, patchy, faint clay films on faces of peds; few fine holes and pores; strongly acid; gradual, wavy boundary.

B23t—35 to 53 inches, yellowish-red (5YR 4/8) sandy clay loam; few, medium, distinct, red mottles and few, fine, distinct, strong-brown mottles; moderate, medium, subangular blocky structure; friable; thin, patchy, faint clay films on faces of peds; very strongly acid; gradual, wavy boundary.

B3—53 to 72 inches, red (2.5YR 4/6) sandy clay loam; many, coarse, prominent, yellowish-brown (10YR 5/8) mottles and few, fine, distinct, dark-red and gray mottles; moderate, medium, subangular blocky structure; friable; thin, patchy, faint clay films on faces of peds; few coarse uncoated sand grains and few soft plinthite nodules; very strongly acid.

The solum is 60 to more than 72 inches thick. The soil material is strongly acid or very strongly acid below the A horizon.

The Ap horizon is 4 to 8 inches thick. It is dark grayish brown, dark brown, brown, grayish brown, strong brown, reddish brown, or yellowish red. The A1 horizon, where present, is very dark gray or very dark grayish-brown loamy sand 3 to 7 inches thick. The A2 horizon, where present, is loamy sand or sand 3 to 12 inches thick. It is brown, strong brown, reddish yellow, light brown, or brownish yellow.

The B1 horizon, where present, is 3 to 15 inches of strong-brown or yellowish-red sandy loam or sandy clay loam.

The B2t horizon is 40 to 60 inches of yellowish-red, reddish-yellow, or red sandy clay loam or sandy loam.

The B3 horizon, where present, is 10 to 25 inches thick. It is yellowish-red or red sandy clay loam, sandy loam, or sandy clay that is mottled with dark red, strong brown, yellowish brown, and pale brown. A few fine gray mottles are common below a depth of 60 inches.

Orangeburg soils occur with Dothan, Blanton, and Vaucluse soils. They have a redder B horizon than Dothan or Blanton soils. Orangeburg soils lack the fragipan of the Vaucluse soils.

Orangeburg loamy sand, 0 to 2 percent slopes (OrA).—This nearly level soil occurs on broad ridgetops. Included in mapping are a few small areas of Dothan, Varina, Fuquay, and Faceville soils. Also included are small areas of soils that have a surface layer of sand or sandy loam.

Almost all of this soil is cultivated. The main crops are cotton, corn, soybeans, and peanuts. Some truck crops are grown. Coastal bermudagrass and bahiagrass are the chief pasture grasses.

This soil can be cropped intensively. Some soil blowing may occur on the larger fields if they are clean tilled. Sod crops are grown on this soil to replenish organic matter and reduce the amount of blowing. Capability unit I–1; woodland suitability group 2o1.

Orangeburg loamy sand, 2 to 6 percent slopes (OrB).—This gently sloping soil is on broad ridges and on some fairly narrow slopes along streams and drainageways. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Dothan, Varina, Fuquay, and Faceville soils and small areas of Clarendon soils that are not so well drained. Also included are small areas of eroded soils that have a surface layer of sandy clay loam.

Most of the total area of this soil is cultivated. The most common crops are cotton, soybeans, corn, and peanuts. Coastal bermudagrass and bahiagrass are the most common pasture grasses.

Erosion is the chief hazard when cultivating this soil. Contour tillage, stripcropping, and cropping sequences that include sod crops will control erosion on some fields. Others will require terraces and grassed waterways in addition to these management practices. Minimum tillage is desirable. Sod crops left on the surface or plowed into the surface layer are grown to replenish organic matter and reduce the hazard of erosion. Capability unit IIe–1; woodland suitability group 2o1.

Orangeburg loamy sand, 6 to 10 percent slopes (OrC).—This sloping soil is on long, narrow areas parallel to streams and drainageways.

Included in mapping are small areas of Vaucluse, Blanton, Ailey, and Dothan soils. Also included are medium-sized areas of soils that have slopes of slightly more than 10 percent or less than 6 percent. In about 10 percent of the mapped area the soil is eroded or severely eroded. Generally the eroded soils are on the steeper abrupt breaks in areas ½ acre to 5 acres in size.

About half of this soil is cultivated, and the rest is wooded and pastured. The most common crops are cotton, corn, and soybeans. Coastal bermudagrass and bahiagrass are the most common pasture grasses.

Erosion is the chief hazard when cultivating this soil

Content of organic matter is moderately low in Pelham soils. Available water capacity is low. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. Runoff is slow.

Representative profile of Pelham sand, about three-fourths of a mile east of Blackville and about 200 yards south of U.S. Highway 78:

Ap—0 to 7 inches, very dark gray (10YR 3/1) sand; weak, fine, granular structure; loose; many fine roots; medium acid; abrupt, smooth boundary.

A2—7 to 24 inches, very pale brown (10YR 7/3) sand; few, fine, distinct, yellowish-brown mottles; weak, fine, granular structure; loose; few fine roots; strongly acid; gradual, wavy boundary.

A3—24 to 36 inches, very pale brown (10YR 7/3) sand; few, fine, distinct, brownish-yellow mottles and few, fine, faint, light-gray mottles; weak, fine, granular structure; loose; very strongly acid; gradual, wavy boundary.

B2tg—36 to 72 inches, gray (10YR 6/1) sandy clay loam; common, coarse, distinct, brownish-yellow (10YR 6/8) mottles; common, medium, prominent, weak-red (2.5YR 5/8) mottles and few, fine, distinct, olive-yellow mottles; weak, fine, subangular blocky structure; friable and sticky; thin patchy clay films on faces of peds; few fine roots in upper part; strongly acid.

The solum is 60 to more than 72 inches thick. The soil material is strongly acid or very strongly acid below the A horizon.

The Ap horizon is 5 to 8 inches thick. It is very dark gray, dark grayish brown, or dark gray. The A1 horizon, where present, is 3 to 6 inches thick. The A2 horizon is sand or loamy sand 15 to 30 inches thick. It is very pale brown, pale brown, light yellowish brown, brown, or pale yellow. A few gray mottles are present in this horizon. The A3 horizon, where present, is loamy sand or sand 6 to 15 inches thick. It is very pale brown, brown, light yellowish brown, or pale brown and has gray or light-gray mottles.

The B2tg horizon is 22 to 45 inches thick. It is gray and has mottles of brownish yellow, weak red, olive yellow, yellow, and light gray.

The A2 and A3 horizons have colors higher in chroma than is defined for the series, but this has little effect on the use, behavior, or management of the soils.

Pelham soils occur with Clarendon, Dunbar, Fuquay, and Blanton soils. They are more poorly drained than any of these soils, and they have a thicker A horizon than Clarendon or Dunbar soils.

Pelham sand (Pe).—This nearly level soil is on slight depressions and in transition to more poorly drained soils. Included in mapping are small areas of Plummer,

face layer extends to a depth of about 50 inches. The upper 21 inches is light-gray sand, and the lower 20 inches is white sand. The subsoil, to a depth of 65 inches, is light-gray sandy loam that has strong-brown mottles.

Content of organic matter is moderate in the surface layer of Plummer soils and low below. Available water capacity is low, and permeability is moderately rapid. Runoff is slow, and ponding is frequent in most years.

Representative profile of Plummer loamy sand, about 2 miles northwest of Blackville, 400 feet south of U.S. Highway 78, and 0.7 mile east of Edisto Experiment Station headquarters in a large bay:

Ap—0 to 9 inches, very dark gray (10YR 3/1) loamy sand; weak, fine, granular structure; loose; common large and many medium roots; extremely acid; abrupt, smooth boundary.

A21—9 to 30 inches, light-gray (10YR 6/1) sand; common, medium, faint, brown (10YR 5/3) mottles; structureless; loose; few large roots; very strongly acid; gradual, wavy boundary.

A22—30 to 50 inches, white (10YR 8/2) sand; structureless; loose; few medium roots; few iron concretions; very strongly acid; clear, wavy boundary.

B2tg—50 to 65 inches, light-gray (10YR 7/1) sandy loam; few, fine, distinct, strong-brown mottles; weak, medium, subangular blocky structure; friable; thin, patchy, faint clay films; extremely acid; gradual, wavy boundary.

The solum is more than 60 inches thick. The soil material ranges from extremely acid to strongly acid.

The Ap horizon is 4 to 9 inches thick. It is very dark gray, dark gray, gray, light gray, light brownish gray, or black. The A2 horizon is sand or loamy sand 36 to 50 inches thick. It is light gray, gray, or white.

The B1 horizon, where present, is 3 to 15 inches of gray or light-gray sandy loam or loamy sand.

The B2tg horizon is 10 to 40 inches of light-gray to very dark gray sandy loam or sandy clay loam.

Plummer soils occur with Blanton, Lakeland, and Johnston soils. They are more poorly drained than Blanton or Lakeland soils. They lack the thick dark A horizon of the Johnston soils.

Plummer loamy sand (Pu).—This nearly level soil occurs on low, wet sandy flats. Included in mapping are small areas of Pelham, Lumbee, Johnston, McColl, and Rembert soils and very small areas of Clarendon—Blan-

Content of organic matter is moderate in Rembert soils. Available water capacity is moderate, and permeability is slow. Runoff is slow, and these soils are frequently ponded.

Representative profile of Rembert loam, 9 miles south of Barnwell and about 2 miles east of the Kline intersection in a bay 150 feet south of paved road:

Ap—0 to 5 inches, very dark gray (10YR 3/1) loam; weak, fine, granular structure; very friable; many fine roots; very strongly acid; abrupt, wavy boundary.

B2tg—5 to 33 inches, light-gray (10YR 6/1) clay; few, medium, distinct, red (2.5YR 4/8) mottles and common, fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, fine, subangular blocky structure; firm and slightly plastic; continuous clay films on faces of peds; common fine and medium roots in upper part; strongly acid; clear, wavy boundary.

Cg—33 to 50 inches, light-gray (N 7/0) sandy clay loam; common, fine, prominent, yellowish-red (5YR 5/6) and strong-brown (7.5YR 5/6) mottles; massive; friable; slightly sticky; pockets of sand and loamy sand; few coarse quartz grains; very strongly acid.

The solum is 30 to 50 inches thick. The soil material below the A horizon is strongly or very strongly acid.

The A horizon is 4 to 8 inches thick. It is very dark gray, very dark grayish brown, or black.

The B1g horizon, where present, is gray or light-gray sandy loam to sandy clay loam. It is less than 10 inches thick.

The B2tg horizon is 15 to 30 inches of gray or light-gray sandy clay to clay. In many places this horizon has mottles of yellowish brown, strong brown, or yellowish red.

The B3 horizon, where present, is gray, light-gray, or white sandy loam to sandy clay loam. It contains large pockets of coarse sand, fine sand, or loamy sand.

The C horizon is loamy sand, sandy loam, sandy clay loam, or sand.

Rembert soils occur with McColl, Lumbee, Plummer, Dunbar, Duplin, and Clarendon soils. They are more poorly drained than Dunbar, Duplin, and Clarendon soils. Rembert soils lack the fragipan of McColl soils and have more clay in the B horizon than Lumbee or Plummer soils.

Rembert loam (Re).—This nearly level, wet soil is in low, flat, oval-shaped bays.

Included with this soil in mapping are small areas of Clarendon, Dunbar, Lumbee, and McColl soils and areas of a soil that has a clayey subsoil extending to a depth

soil extends to a depth of 72 inches. In sequence from the top, it is 22 inches of yellowish-brown sandy clay, 12 inches of yellowish-brown sandy clay that has reddish-brown mottles and contains plinthite, and 30 inches of [illegible]

plants, rotations with sod crops, and windbreaks are practices used to reduce wind damage and replenish organic matter. Capability unit IIs–2; woodland suitability

Bx—19 to 49 inches, red (2.5Y 5/8) sandy loam; common, coarse, prominent, yellow (2.5Y 8/6) and yellowish-brown (10YR 5/8) mottles; massive; firm and brittle in 70 to 85 percent of the horizon; 4-inch horizontal band of white (10YR 8/1) kaolin clay at a depth of 43 inches; very strongly acid; clear, wavy boundary.

B3—49 to 80 inches, red (10YR 5/6) coarse sandy loam; massive; friable; pockets of reddish-gray (10YR 5/1) kaolin clay 5 to 10 millimeters in diameter; very strongly acid.

The solum is 40 to more than 80 inches thick. The Bt and Bx horizons are strongly acid to extremely acid.

The Ap horizon is 4 to 10 inches thick and is brown, dark brown, grayish brown, pale brown, or light yellowish brown. In areas that have not been plowed there is an A1 horizon that is 3 to 6 inches thick. This horizon is brown, dark brown, gray, grayish brown, or very dark grayish brown. The A2 horizon, where present, is 3 to 10 inches of yellow, brownish-yellow, reddish-yellow, or very pale brown sand or loamy sand.

The B1 horizon, where present, is 3 to 9 inches thick. It is reddish brown, yellowish brown, or strong brown.

The B2t horizon is 5 to 20 inches thick. It is red, light red, reddish brown, yellowish red, reddish yellow, strong brown, or yellowish brown.

The Bx horizon is red, yellowish red, reddish yellow, strong brown, or yellowish brown. It has irregular, long, narrow areas of gray, pinkish gray, very pale brown, or white that are more clayey and less brittle than the rest of the horizon. Texture ranges from sandy clay loam to coarse sandy loam. This horizon is cemented and brittle in 60 to 90 percent of the mass.

The B3 horizon, where present, is coarsely mottled, weak-red, red, yellowish-red, and gray sandy loam, coarse sandy loam, or sandy clay loam.

The C horizon, where present, is coarsely mottled, weak-red, red, yellowish-red, and gray coarse loamy sand to sandy loam.

Vaucluse soils occur with Ailey, Dothan, Fuquay, Orangeburg, and Varina soils. Unlike Dothan, Fuquay, Orangeburg, and Varina soils, Vaucluse soils have a fragipan. The Vaucluse soils lack the thick, sandy A horizon of the Ailey soils.

Vaucluse loamy sand, 2 to 6 percent slopes (VcB).—This gently sloping or undulating soil is on short breaks and narrow ridges around streams or drainageways. It has the profile described as representative for the series.

Included with this soil in mapping are small areas of Ailey, Dothan, Faceville, Fuquay, Orangeburg, and Varina soils. A few areas, generally an acre or less in size, are eroded and have a surface layer of sandy clay loam.

About half the total area of this soil is cultivated. The other half is idle, wooded, or in pasture. Cotton, corn, and soybeans are the chief crops. Coastal bermudagrass and bahiagrass are the main pasture grasses.

Erosion is the chief hazard when cultivating this soil. The slopes are undulating, and it is very difficult to

Figure 7.—**Windthrow of planted pines on Vaucluse loamy sand, 2 to 6 percent slopes.**

Most areas of this soil are either wooded or are idle. A few areas are in pasture. Coastal bermudagrass and bahiagrass are the chief pasture grasses.

Erosion is the chief hazard when managing this soil. Terracing, contour farming, growing grass or other plants in waterways, using sod crops frequently in the cropping system, and returning crop residue to the soil help to reduce the hazard of erosion. The fragipan restricts root penetration (fig. 8). Capability unit IVe–4; woodland suitability group 3o1.

Vaucluse soils, 10 to 25 percent slopes (VcD).—These strongly sloping to moderately steep soils are on the breaks near streams or major drainageways. In much of the area the profile of these soils is similar to the one described as representative of the Vaucluse series.

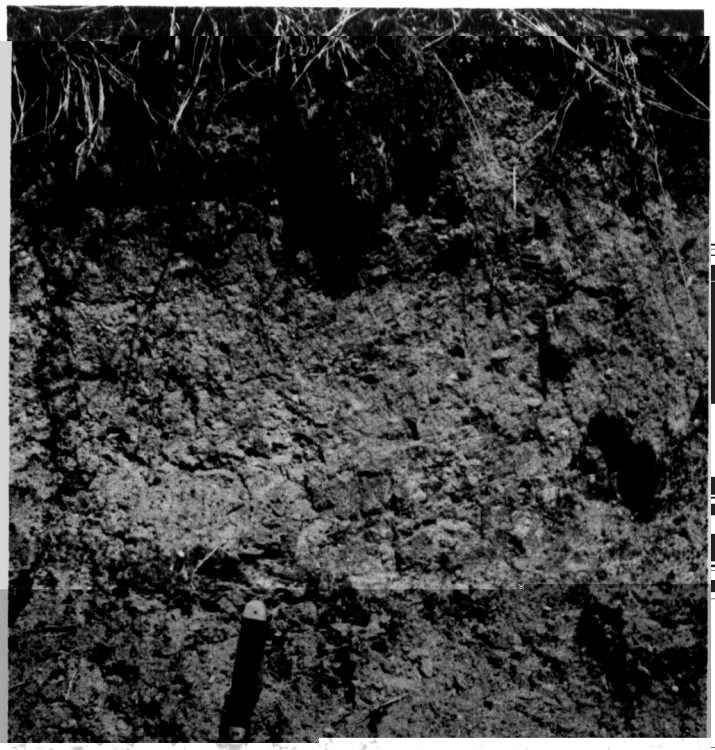
The pattern and extent of Vaucluse and other soils are not uniform in the mapped areas. Vaucluse soils make up 50 to 100 percent of each mapped area. Some of the other soils lack a fragipan but have a subsoil that is 30 to 50 percent brittle material. Others have a fragipan below a sandy surface layer that is 20 to 40 inches thick. Small amounts of Blanton, Fuquay, or Orangeburg soils are included in mapping in places. Also, a few gullies are included in some of the mapped areas.

Most areas of this soil are wooded, but few have been cleared for pasture. Coastal bermudagrass has been planted in places.

Erosion is a severe hazard when managing this soil, and the soil is seldom cultivated. Capability unit VIe–1; woodland suitability group 3o1.

Use and Management of the Soils

The soils of Barnwell County, Eastern Part, are used for row crops, woodland, and pasture. In this section general management of cropland is discussed; the system of land capability classification used by the Soil Conservation Service is described; estimates of yields of the principal crops under a high level of management are given; each soil in capability class I through IV is rated according to its suitability for specified crops; the soils are grouped according to their suitability for use as woodland, and information useful in the management of woodland is provided; and the use of soils for wildlife habitat is discussed. The engineering classification of soils is also discussed in this section, and interpretations are made of the soil characteristics that are significant to engineering and recreational uses of soils.



include applying the proper fertilizer, maintaining the organic-matter content of the soil, selecting a good cropping system, tilling the soil properly, and controlling erosion. Some soils also require improved drainage. These basic management practices are discussed in this subsection.

Fertilizer and lime.—Most of the soils in Barnwell County, Eastern Part, are acid and low in natural fer-

especially those of the Clarendon, Dothan, and Fuquay series, develop a compacted restrictive layer called a plowpan or plowsole, if tilled repeatedly at the same depth. Growing sod crops and varying the depth of tillage prevent the formation of a plowpan.

Tillage practices that leave a mulch of crop residue on the surface of the soil have been successful in Barnwell County, Eastern Part. Limited tillage systems are being tested at this time. The system that disturbs the soil the least and returns organic matter to the soil is the one that helps to prevent soil losses by soil blowing and water erosion.

Erosion control.—Soil erosion can be caused by wind or water in Barnwell County, Eastern Part. Large fields of such soils as Dothan, Fuquay, and Varina are especially susceptible to soil blowing when they have been freshly plowed and the surface is dry during spring. Windbreaks, cover crops, wind stripcropping, and tillage systems that leave crop residues on the surface are used to control erosion.

Most soils in Barnwell County, Eastern Part, that have slopes of more than 2 percent and are used as cropland are subject to damage by water erosion. Water erosion can be controlled by water management systems that include diversions, terraces, contour tillage, and grassed waterways. Cropping systems that include cropping sequences and tillage that leaves protective residues on the surface also help control water erosion.

Drainage.—Drainage is essential for good crop production on some soils, such as those of the Clarendon, McColl, and Rembert series (fig. 9).

Drainage ditches and tile drainage systems are used in this county, sometimes in combination. Land smoothing and bedding systems are also used to provide better surface drainage.

Capability Grouping

Some readers, particularly those who farm on a large scale, may find it practical to use and manage alike some of the different kinds of soil on their farm. These readers can make good use of the capability classification system, a grouping that shows, in a general way, the suitability of soils for most kinds of farming.

The grouping is based on limitations of soils when used for field crops, the risk of damage when they are farmed, and the way the soils respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; and does not take into consideration possible but unlikely major reclamation projects.

Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability

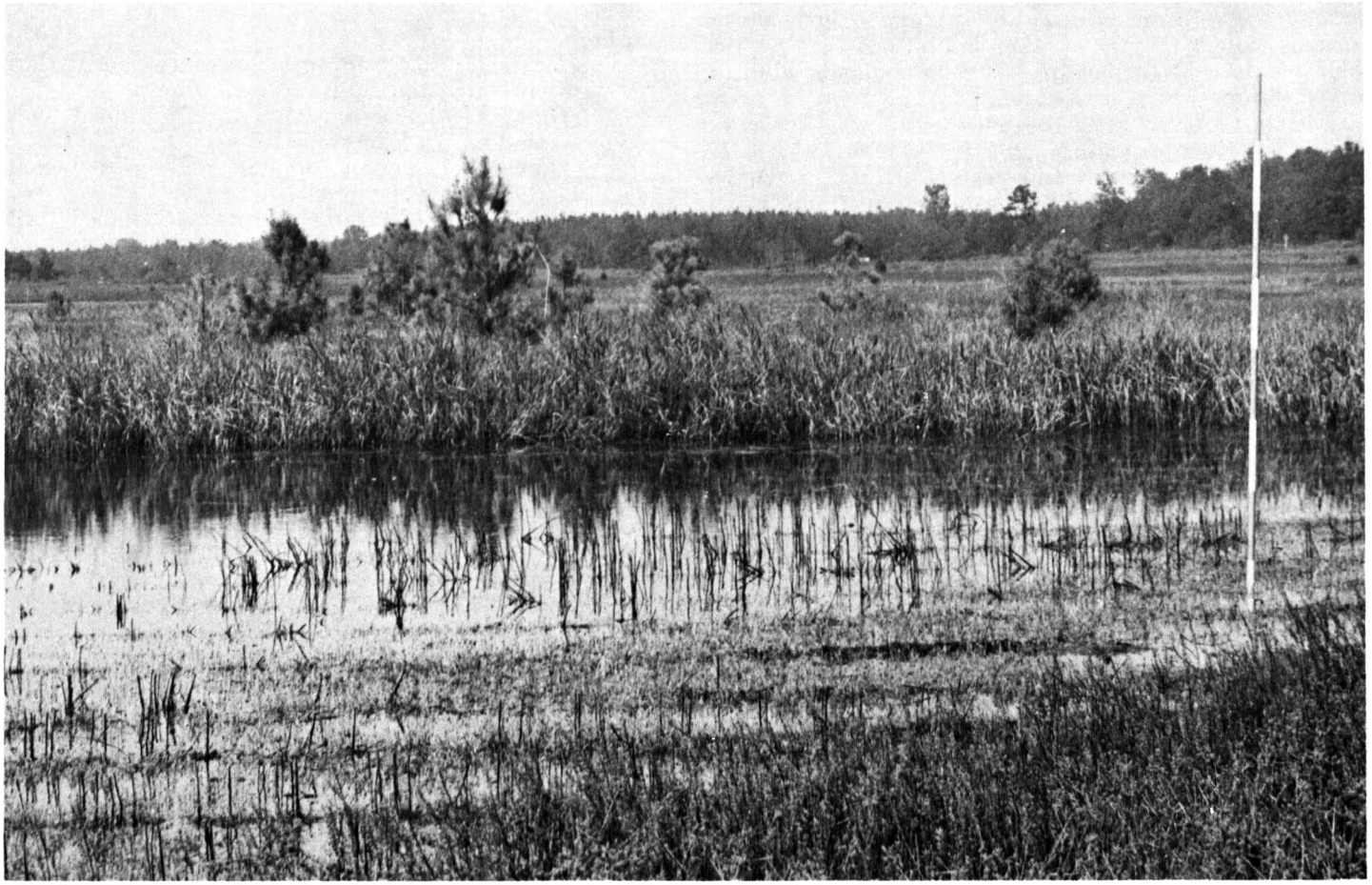


***Figure 9.*—Water covers the surface of Rembert loam much of the time unless drainage is provided by open ditches or tile.**

and limitations of groups of soils for forest trees or for engineering.

In the capability system, all kinds of soil are grouped at three levels—the class, the subclass, and the unit. The

Class II. Soils having moderate limitations that reduce the choice of plants or require moderate conservation practices.

Subclass IIe. Soils subject to moderate erosion un-

Unit IVe–4. Sloping, well-drained soils that are moderately deep to a fragipan which restricts root development.

Subclass IVw. Soils very severely limited because of excess water.

Unit IVw–3. Deep, nearly level, poorly drained soils that have a thick sandy surface layer and a loamy subsoil.

Subclass IVs. Soils very severely limited because of low available water capacity.

Unit IVs–1. Deep, nearly level to gently sloping, excessively drained droughty soils that are sandy throughout.

Unit IVs–2. Sloping, well-drained soils that are deep to a fragipan which restricts root development.

Class V. Soils that are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover.

Subclass Vw. Soils unsuited to cultivation because of excess water.

Unit Vw–1. Poorly drained soils that have a clayey or loamy subsoil and that are not ditched or tile drained.

Class VI. Soils having severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, woodland, or wildlife food and cover.

Subclass VIe. Soils severely limited, chiefly by risk

with crop yields obtained from similar soils in other counties in South Carolina.

The practices used in high level management vary according to the soils. The following practices are necessary for high yields:

1. Proper choice and rotation of crops in the cropping system.
2. Correct use of fertilizer, lime, and manure.
3. Correct methods of tillage.
4. Return of organic matter to the soils.
5. Adequate control of water.
6. Maintenance or improvement of workability of the soils.
7. Conservation of soil material, plant nutrients, and soil moisture.

The soils of Barnwell County, Eastern Part, are responsive to good management and fertilization. Higher yields can be obtained from nearly all soils in the county through improved management.

In table 2 the suitability of soils is also rated for selected crops. A rating of 1 indicates that the soil is well suited to the stated crop. Hazards are few, and favorable yields are likely. A rating of 2 indicates that the soil is fairly well suited to the crop, but growth is limited by excessive moisture, too little moisture, low fertility, or some other undesirable characteristic. A rating of 3 indicates that the soil is not well suited to the crop (fig. 10) and that favorable yields are likely to occur only

TABLE 2.—*Estimated yields and* [illegible] *soils in capability classes I to IV under a high level of management. Absence of yield figure indicates crop is*

Soil	Corn		Cotton (lint)	
	Yields per acre	Suitability	Yields per acre	Suitability
	Bu		*Lbs*	
Ailey sand, 6 to 10 percent slopes	--	4	---	4
Blanton sand, 0 to 6 percent slopes	55	3	---	4
Blanton sand, 6 to 10 percent slopes	50	3	---	4
Clarendon loamy sand	90	1	650	1
Dothan loamy sand, 0 to 2 percent slopes	80	1	750	1
Dothan loamy sand, 2 to 6 percent slopes	75	2	700	1

suitability of soils for selected crops

not generally grown on that soil. The suitability rating of 1 indicates

TABLE 3.—*Woodland suitability groups of soils and factors for wood crops*—Continued

Woodland suitability group and description	Soil series and map symbols	Productivity		Species suitable for planting
		Tree species	Site index	
2w9 Excessively wet soils with high	Lumbee: Lu;	Loblolly pine[1]	90	Loblolly pine, slash pine[2]

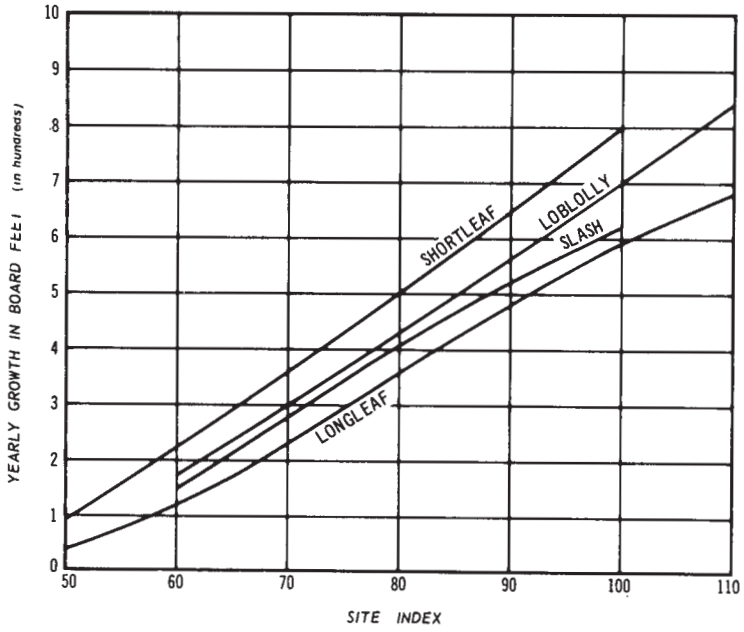
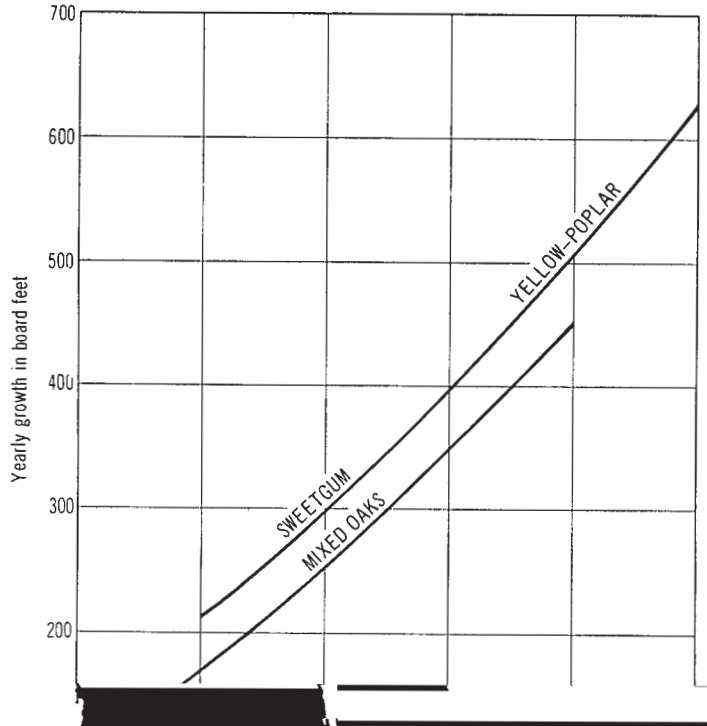


***Figure 11.*—Average yearly growth per acre in board feet for 50-year-old, well-stocked stands of southern pines. (Scribner log rule, all stems 8 inches or larger in diameter.)**



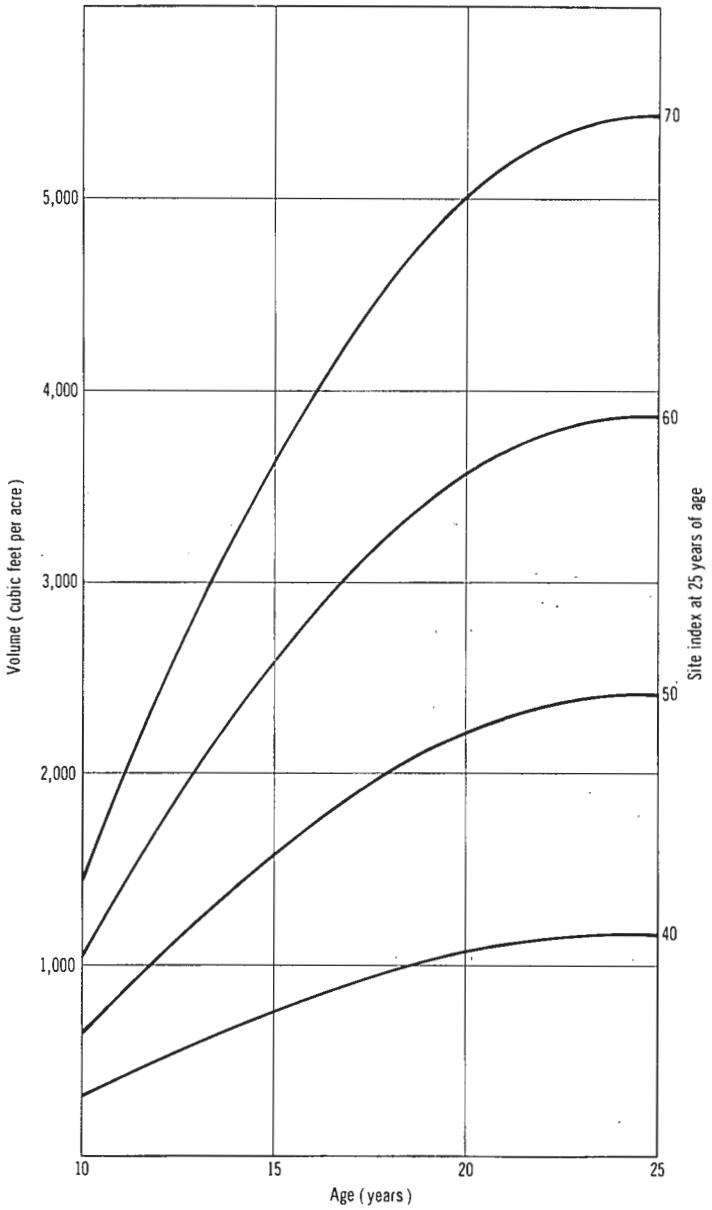


***Figure 13.*—Volume of merchantable wood (inside bark) to a 3-inch top in cubic feet per acre for loblolly pine plantations. Stocking: 700 trees per acre.**

A rating of poor means the soil limitations for this

Elements of wildlife habitat.—Each soil is rated in table 4 according to its suitability for producing various kinds of plants and other elements that make up wildlife habitats. The ratings take into account mainly the characteristics of the soils and closely related natural factors of the environment. They do not take into account climate, present use of soils, or present distribution of wildlife and people. For this reason, selection of a site for development as a habitat for wildlife requires inspection at the site.

Grain and seed crops.—These crops are annual grain-producing plants, such as corn, sorghum, millet, and soybeans.

Grasses and legumes.—Making up the group are domestic grasses and legumes that are established by planting. They provide food and cover for wildlife. Grasses include bahiagrass, ryegrass, and panicgrass; legumes include annual lespedeza, shrub lespedeza, and clovers.

Wild herbaceous plants.—This group consists of native or introduced perennial grasses, forbs, and weeds that provide food and cover for upland wildlife. Beggarweed, perennial lespedeza, wild bean, pokeweed, and cheatgrass are typical examples. Typical range plants are bluestem, grama, perennial forbs, and legumes.

Hardwood trees, shrubs, and vines.—These plants are nonconiferous trees, shrubs, and woody vines that produce wildlife food in the form of fruits, nuts, buds, catkins, or browse. Such plants commonly grow in their natural environment, but they may be planted and developed through wildlife management programs. Typical species in this category are oak, beech, cherry, dogwood, maple, viburnum, grape, honeysuckle, greenbrier, and silverberry.

Wetland food and cover plants.—In this group are annual and perennial herbaceous plants that grow wild on moist and wet sites. They furnish food and cover mostly for wetland wildlife. Typical examples of plants are smartweed, wild millet, spikerush and other rushes, sedges, burreed, tearthumb, and aneilema. Submersed and floating aquatics are not included in this category.

Shallow-water developments.—These developments are impoundments or excavations for controlling water, generally not more than 5 feet deep, to create habitats that are suitable for waterfowl. Some are designed to be drained, planted, and then flooded; others are permanent impoundments that grow submersed aquatics.

Kinds of wildlife.—In table 4 soils are rated according to their suitability as habitat for the three kinds of wildlife in the county—open-land, woodland, and wetland. These ratings are related to ratings made for the elements of habitat. For example, soils rated very poor for shallow-water developments are rated very poor for wetland wildlife.

Open-land wildlife are birds and mammals that normally live in meadows, pastures, and open areas where grasses, herbs, and shrubby plants grow. Quail, doves, meadowlarks, field sparrows, cottontail rabbits, and foxes are typical examples of open-land wildlife.

rails, shore birds, herons, minks, and muskrats are typical examples of wetland wildlife.

Engineering Uses of the Soils [5]

This section is useful to those who need information about soils used as structural material or as foundation upon which structures are built. Among those who can benefit from this section are planning commissions, town and city managers, land developers, engineers, contractors, and farmers.

Among properties of soils highly important in engineering are permeability, strength, compaction characteristics, soil drainage condition, shrink-swell potential, grain size, plasticity, and soil reaction. Also important are depth to the water table and soil slope. These properties, in various degrees and combinations, affect construction and maintenance of roads, airports, pipelines, foundations for small buildings, irrigation systems, ponds and small dams, and systems for disposal of sewage and refuse.

Information in this section of the soil survey can be helpful to those who—

1. Select potential residential, industrial, commercial, and recreational areas.
2. Evaluate alternate routes for roads, highways, pipelines, and underground cables.
3. Seek sources of gravel, sand, or clay.
4. Plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for controlling water and conserving soil.
5. Correlate performance of structures already built with properties of the kinds of soil on which they are built to predict performance of structures on the same or similar kinds of soil in other locations.
6. Predict the trafficability of soils for cross-country movement of vehicles and construction equipment.
7. Develop preliminary estimates pertinent to construction in a particular area.

Most of the information in this section is presented in tables 5 to 12, which show, respectively, several estimated soil properties significant to engineering; interpretations for various engineering uses; and results of engineering laboratory tests on soil samples.

This information, along with the soil map and other parts of this publication, can be used to make interpretations in addition to those given in tables 5 to 12. It also can be used to make other useful maps.

This information, however, does not eliminate need for further investigations at sites selected for engineering works, especially works that involve heavy loads or that require excavations to depths greater than those shown in the tables, generally depths greater than 6 feet. Also, inspection of sites, especially the small ones, is needed because many delineated areas of a given soil mapping unit may contain small areas of other kinds of soil that

TABLE 4.—*Suitability of soils for elements of wildlife habitat and kinds of wildlife*

Soil	Elements of wildlife habitat						Kinds of wildlife		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees, shrubs, and vines	Wetland food and cover plants	Shallow-water developments	Open-land	Wood-land	Wet-land
Ailey sand, 6 to 10 percent slopes.	Poor	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Ailey sand, 10 to 15 percent slopes.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Blanton sand, 0 to 6 percent slopes.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Blanton sand, 6 to 10 percent slopes.	Poor	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Clarendon loamy sand.	Good	Good	Good	Good	Very poor.	Poor	Good	Good	Poor.
Dothan loamy sand, 0 to 2 percent slopes.	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Dothan loamy sand, 2 to 6 percent slopes.	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Dothan loamy sand, 6 to 10 percent slopes.	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Dunbar sandy loam	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Duplin sandy loam, 0 to 2 percent slopes.	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Faceville loamy sand, 2 to 6 percent slopes.	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Faceville loamy sand, 6 to 10 percent slopes.	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Fuquay sand, 0 to 2 percent slopes.	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Fuquay sand, 2 to 6 percent slopes.	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Fuquay sand, 6 to 10 percent slopes.	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Johnston soils	Very poor.	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Fair	Fair.
Lakeland sand, 0 to 6 percent slopes.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Lakeland sand, 6 to 10 percent slopes.	Very poor.	Poor	Poor	Fair	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Lumbee loamy sand	Poor	Poor	Poor	Good	Fair	Fair	Poor	Good	Fair.
McColl loam	Very poor.	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Fair	Fair.
Orangeburg loamy sand, 0 to 2 percent slopes.	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Orangeburg loamy sand, 2 to 6 percent slopes.	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Orangeburg loamy [illegible]	Fair	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

TABLE 5.—*Classification and*

Soil series and map symbols	Depth	USDA texture
	In	
Ailey: AeC, AeD.	0–30	Sand

estimated physical properties

Classification		Percentage passing sieve—		
Unified	AASHTO	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.072 mm)
SM, SP–SM	A–2	80–100	50–75	10–20
SC, SM	A–2, A–4	80–100	60–85	30–40
SC, SM	A–2	80–100	55–80	20–35
SM, SP–SM	A–2, A–3	100	70–90	5–20
SC, SM	A–4, A–2	95–100	80–90	30–45
SM	A–2	95–100	65–85	15–25
SM	A–2	95–100	70–85	20–30
SC	A–4	95–100	75–90	36–45
SC	A–4, A–2	95–100	75–90	30–45
SM	A–2	95–100	65–90	14–35
SM–SC, SC	A–2, A–4, A–6	95–100	65–90	30–40
SM–SC, SC	A–2, A–4, A–6	95–100	75–92	30–49
SM	A–4, A–2	100	70–85	30–45
CH, CL, ML	A–7, A–6	100	80–95	55–70
SM	A–2, A–4	100	70–90	25–40
CL, CH	A–6, A–7	100	85–100	55–71
SM, SM-SC	A–2	95–100	65–85	20–35
CL, SC, ML	A–6, A–7	95–100	75–95	45–70
SP-SM, SM	A–2, A–3	100	50–80	5–20
SM, SC	A–2, A–4	100	65–80	20–40
SC, CL	A–6, A–4, A–2	100	80–90	30–55
OL	----------	100	85–95	40–60
SM-SC, SM	A–4, A–2	100	70–85	30–50
SP-SM	A–3	100	70–80	5–10
SP	A–3	100	70–80	1–5
SM	A–2	85–100	65–90	15–35
SC, SM–SC	A–2, A–4, A–6	90–100	65–95	36–50
SM	A–2	85–100	65–95	15–25
SM, SC	A–2, A–6	95–100	75–90	25–50
SC, ML, CL	A–4, A–7	95–100	80–98	36–75
CL–ML, SC, CL	A–2, A–6	95–100	65–90	32–55
SM	A–2	95–100	70–90	15–35
CL, SC	A–6, A–4	95–100	80–95	36–55
SP–SM, SM	A–2, A–3	95–100	75–100	5–20
CL, SC	A–4	100	85–100	40–65
SP–SM, SM	A–2	100	80–100	10–20
SM	A–2	100	65–100	20–35
SC, CL	A–4, A–6	100	70–90	45–70
CL	A–7	100	85–95	65–80
SM, SC	A–2, A–4	100	50–70	30–40
SM	A–2	100	80–90	15–35
SC, CL	A–6, A–7	100	85–95	45–70
SC, SM, CL	A–4, A–6, A–7	100	85–95	45–70
SP–SM, SM	A–2, A–3	100	51–70	8–20
SM, SC	A–2, A–4	95–100	50–70	25–49
SM	A–2, A–4	95–100	50–70	20–40

TABLE 6.—*Estimated physical*

Soil series and map symbols	Depth	Permeability	Available water capacity
	Inches	*Inches per hour*	*Inches per inch of soil*
Ailey: AeC, AeD.	0–30	6.0–20	0.03–0.05
	30–41	0.6–2.0	0.09–0.12
	41–64	0.06–0.2	0.08–0.10
Blanton: BaB, BaC.	0–60	6.0–2.0	0.06–0.08
	60–95	0.6–2.0	0.12–0.17
Clarendon: Cd.	0–7	2.0–6.0	0.09–0.12
	7–13	2.0–6.0	0.10–0.12
	13–30	0.6–2.0	0.10–0.14
	30–72	0.2–0.6	0.08–0.12
Dothan: DaA, DaB, DaC.	0–11	2.0–6.0	0.08–0.11
	11–33	0.6–2.0	0.10–0.14
	33–70	0.2–0.6	0.12–0.16
Dunbar: Db.	0–7	2.0–6.0	0.10–0.14
	7–60	0.2–0.6	0.13–0.15
Duplin: DpA.	0–8	2.0–6.0	0.12–0.14
	8–72	0.2–0.6	0.14–0.16
Faceville: FaB, FaC.	0–7	2.0–6.0	0.06–0.10
	7–72	0.6–2.0	0.12–0.15
Fuquay: FuA, FuB, FuC.	0–22	6.0–20	0.02–0.08
	22–34	2.0–6.0	0.10–0.12
	34–80	0.06–0.2	0.10–0.12
Johnston: JO.	0–38	0.6–2.0	0.15–0.20
	38–60	2.0–6.0	0.10–0.14
Lakeland: LaB, LaC.	0–68	6.0–20	0.02–0.05
	68–86	6.0–20	0.02–0.05
Lumbee: Lu.	0–8	2.0–6.0	0.03–0.12
	8–40	0.6–2.0	0.10–0.14
	40–60	2.0–6.0	0.04–0.08
McColl: Mc.	0–8	0.6–2.0	0.12–0.16
	8–20	0.2–0.6	0.13–0.17
	20–60	0.06–0.2	0.05–0.09
Orangeburg: OrA, OrB, OrC.	0–10	2.0–6.0	0.06–0.08
	10–72	0.6–2.0	0.10–0.13
Pelham: Pe.	0–36	6.0–20	0.05–0.08
	36–72	0.6–2.0	0.10–0.12
Plummer: Pu.	0–50	2.0–6.0	0.03–0.08
	50–65	0.6–2.0	0.10–0.13
Rembert: Re.	0–5	0.6–2.0	0.15–0.20
	5–33	0.06–0.2	0.12–0.16
	33–50	0.6–2.0	0.12–0.17
Varina: VaA, VaB, VaC.	0–8	2.0–6.0	0.08–0.13
	8–30	0.6–2.0	0.12–0.16
	30–72	0.06–0.2	0.08–0.12
Vaucluse: VcB, VcC, VcD.	0–6	6.0–20	0.04–0.06
	6–19	0.6–2.0	0.10–0.14
	19–80	0.06–0.2	0.05–0.08

and chemical characteristics

Soil reaction	Shrink-swell potential	Risk of corrosion	
		Uncoated steel	Concrete
pH			
4.5–6.0	Low	Moderate: acidity, texture	Moderate, texture, acidity.
4.5–5.5	Low		
4.5–5.5	Low		
4.5–5.5	Low	Low	Moderate: acidity.
4.5–5.5	Low		
4.5–5.5	Low	Moderate: texture, drainage	Moderate: acidity, texture.
4.5–5.5	Low		
4.5–5.5	Low		
4.5–5.5	Low		
4.5–5.5	Low	Moderate: texture, drainage	Moderate: texture, acidity.
4.5–5.5	Low		
4.5–5.5	Low		
4.5–5.5	Low	High: drainage, texture	High: acidity.
4.5–5.5	Moderate		
4.5–5.5	Low	High: wetness, texture	High: texture, acidity.
4.5–5.5	Moderate		
4.5–5.5	Low	Moderate: acidity	Moderate: acidity.
4.5–5.5	Moderate		
4.5–5.5	Low	Low	High: texture, acidity.
4.5–5.5	Low		
4.5–5.5	Low		
4.5–5.5	Low	Moderate: drainage	High: texture, acidity.
4.5–5.5	Low		
4.5–5.5	Low	Low	Moderate to high: texture,

TABLE 7.—*Community development*

[Soil characteristics in this table are expressed in computer-adapted terms differing from those in the Soil Survey Manual (*9*). Refer to the Glossary for definition of "low strength" and other terms that describe soil characteristics]

Soil series and map symbols	Dwellings	Small commercial buildings	Highways and streets
Ailey: AeC, AeD	Moderate: slope	Moderate if slope is 6 to 10 percent, severe if slope is 10 to 15 percent.	Moderate: slope.
Blanton: BaB, BaC	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.
Clarendon: Cd	Moderate: wetness	Moderate: wetness	Moderate: low strength.
Dothan: DaA, DaB, DaC	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Moderate: low strength.
Dunbar: Db	Severe: wetness	Severe: wetness	Severe: low strength, wetness, shrink-swell.
Duplin: DpA	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell	Moderate to severe: low strength, shrink-swell, wetness.
Faceville: FaB, FaC	Slight if slope is 2 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 2 to 6 percent, moderate if slope is 6 to 10 percent.	Moderate: low strength, shrink-swell.
Fuquay: FuA, FuB, FuC	Moderate: low strength	Moderate: low strength	Moderate: low strength.
Johnston: JO	Severe: floods, wetness	Severe: floods, wetness	Severe: floods, wetness.
Lakeland: LaB, LaC	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent; low strength.	Moderate if slope is 0 to 6 percent, low strength; severe if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.
Lumbee: Lu	Severe: wetness, floods	Severe: wetness, floods	Severe: wetness, floods.
McColl: Mc	Severe: floods, wetness	Severe: floods, wetness	Severe: floods, wetness.
Orangeburg: OrA, OrB, OrC	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.
Pelham: Pe	Severe: wetness	Severe: wetness	Severe: wetness.
Plummer: Pu	Severe: floods, wetness	Severe: floods, wetness	Severe: floods, wetness.
Rembert: Re	Severe: floods, wetness	Severe: floods, wetness	Severe: floods, wetness.
Varina: VaA, VaB, VaC	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.
Vaucluse: VcB, VcC, VcD	Slight if slope is 2 to 6 percent, moderate if slope is 6 to 10 percent, severe if slope is 10 to 25 percent.	Slight if slope is 2 to 6 percent, moderate if slope is 6 to 10 percent, severe if slope is 10 to 25 percent.	Slight if slope is 2 to 6 percent, moderate if slope is 6 to 10 percent, severe if slope is 10 to 25 percent.

Engineering soil classification systems

The two systems most commonly used in classifying samples of soils for engineering are the Unified system by the SCS engineers, Department of Defense, and others, and the AASHTO system adopted by the American Association of State Highway Officials.

In the Unified system soils are classified according to particle-size distribution, plasticity, liquid limit, and organic matter. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes are designated by symbols for both classes; for example, CL-ML.

The AASHTO system is used to classify soils according to those properties that affect use in highway construction and maintenance. In this system a soil is placed in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. In group A-1 are gravelly soils of high bearing strength, or the best soils for subgrade (foundation). At the other extreme, in group A-7, are clay soils that have low strength when wet and that are the poorest soils for subgrade. Where laboratory data are available to justify a further breakdown, the A-1, A-2, and A-7 groups are divided as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As additional refinement, the engineering value of a soil material can be indicated by a group index number. Group indexes range from 0 for

TABLE 8.—*Sanitary facilities*

[Soil characteristics in this table are expressed in computer-adapted terms differing from those in the Soil Survey Manual (*9*). Refer to the Glossary for definition of "percs slowly" and other terms that describe soil characteristics]

Soil series and map symbols	Septic-tank absorption fields	Sewage lagoons	Sanitary landfill (trench)
Ailey: AeC, AeD	Severe: cemented pan	Severe: slope	Slight.
Blanton: BaB, BaC	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Severe: percs rapidly	Slight.
Clarendon: Cd	Severe: wetness	Severe: wetness [1]	Severe: wetness.
Dothan: DaA, DaB, DaC	Moderate: percs slowly	Slight if slope is 0 to 2 percent, moderate if slope is 2 to 6 percent, severe if slope is 6 to 10 percent.	Slight.
Dunbar: Db	Severe: wetness	Severe: wetness	Severe: wetness.
Duplin: DpA	Severe: wetness	Severe: wetness [1]	Severe: wetness.
Faceville: FaB, FaC	Slight if slope is 2 to 6 percent, moderate if slope is 6 to 10 percent.	Moderate if slope is 2 to 6 percent: seepage. Severe if slope is 6 to 10 percent.	Moderate: too clayey.
Fuquay: FuA, FuB, FuC	Moderate: percs slowly	Moderate: seepage	Slight.
Johnston: JO	Severe: floods, wetness	Severe: floods, wetness	Severe: floods, wetness.
Lakeland: LaB, LaC	Slight if slope is 0 to 6 percent moderate if slope is 6 to 10 percent.[2]	Severe: seepage	Severe: too sandy.[3]
Lumbee: Lu	Severe: wetness	Severe: wetness	Severe: wetness.
McColl: Mc	Severe: wetness	Severe: wetness [1]	Severe: wetness.
Orangeburg: OrA, OrB, OrC	Slight if slope is 0 to 6 percent, moderate if slope is 6 to 10 percent.	Moderate if slope is 0 to 6 percent: seepage. Severe if slope is 6 to 10 percent.	Slight.
Pelham: Pe	Severe: wetness	Severe: wetness	Severe: wetness.
Plummer: Pu	Severe: wetness	Severe: wetness	Severe: wetness.
Rembert: Re	Severe: wetness	Severe: wetness [1]	Severe: wetness.
Varina: VaA, VaB, VaC	Severe: percs slowly	Slight if slope is 0 to 2 percent,	Moderate: too clayey.

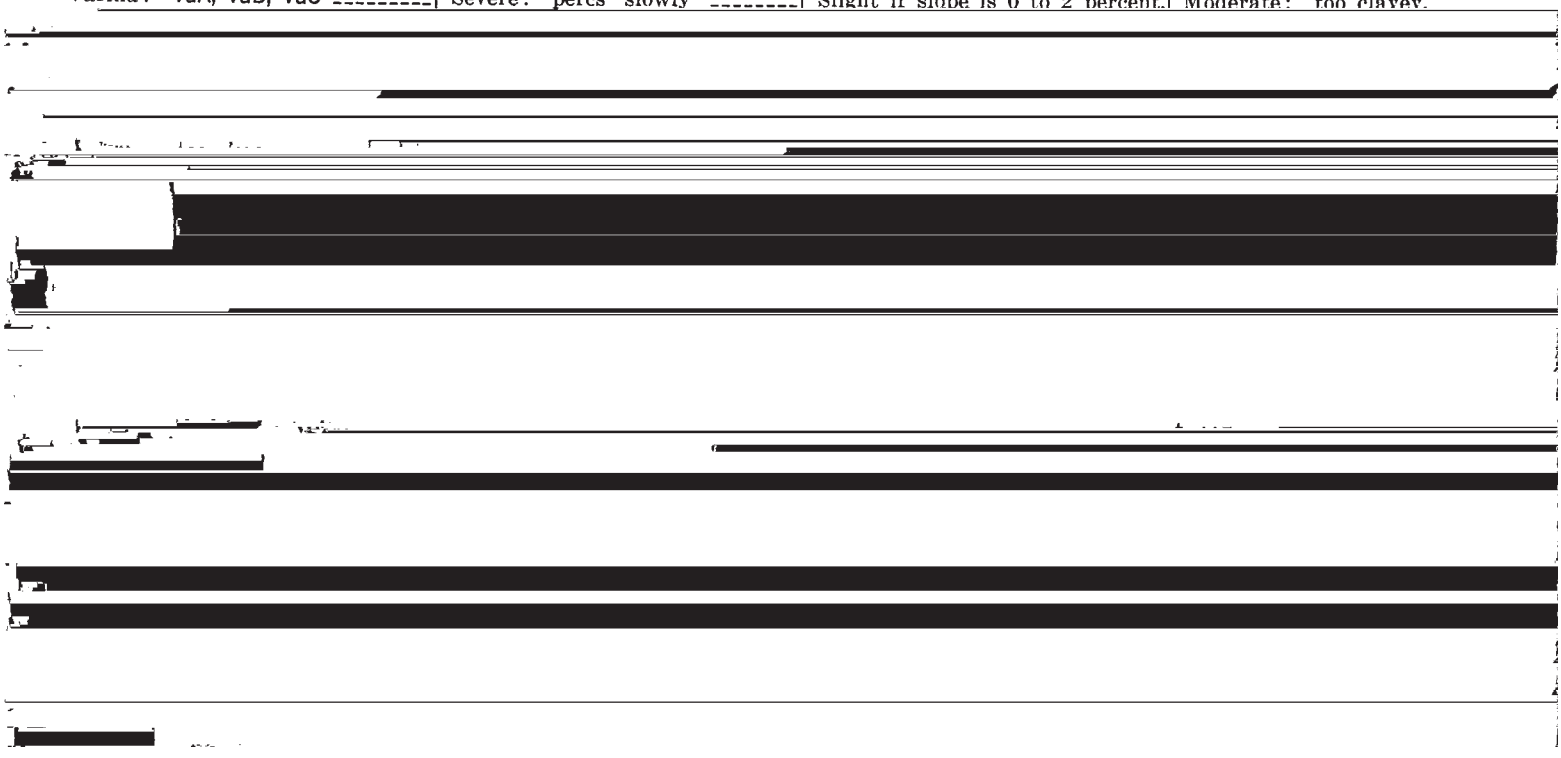


TABLE 9.—*Hydrologic features*

[The symbol > means more than]

Soil series and map symbols	Water on surface		Depth to water table
	Frequency	Duration	
		Months	*Feet*
Ailey: AeC, AeD	None	None	>6
Blanton: BaB, BaC	None	None	>6
Clarendon: Cd	None	None	1.5–2.5
Dothan: DaA, DaB, DaC.	None	None	>6
Dunbar: Db	Occasional	0–0.5	0–1.5
Duplin: DpA	None	None	2.5
Faceville: FaB, FaC	None	None	>6
Fuquay: FuA, FuB, FuC.	None	None	>6
Johnston: JO	Very frequent	10–12	0–1
Lakeland: LaB, LaC	None	None	>6
Lumbee: Lu	Frequent	2–6	0–1
McColl: Mc	Frequent	2–6	0–2
Orangeburg: OrA, OrB, OrC.	None	None	>6
Pelham: Pe	Occasional	1–2	1–4
Plummer: Pu	Frequent	6–11	0–1.5
Rembert: Re	Frequent	6–10	0–1
Varina: VaA, VaB, VaC.	None	None	>6
Vaucluse: VcB, VcC, VcD.	None	None	>6

than sand, an appropriate modifier is added, as for example, "gravelly loamy sand."

Bedrock is more than 10 feet below the surface for all soils in this survey area.

Permeability in table 6 is that quality of a soil that enables it to transmit water or air. It is estimated on the basis of those soil characteristics observed in the field, particularly structure and texture. The estimates in table 6 do not take into account lateral seepage or such transient soil features as plowpans and surface crusts.

Available water capacity is the ability of soils to hold water for use by most plants. It is commonly defined as the difference between the amount of water in the soil at field capacity and the amount at the wilting point of most crop plants.

Reaction is the degree of acidity or alkalinity of a soil, expressed in pH values. The pH value and terms used to describe soil reaction are explained in the Glossary.

Shrink-swell potential is the relative change in volume to be expected of soil material with changes in moisture content; that is, the extent to which the soil shrinks as it dries out or swells when it gets wet. Extent of shrinking and swelling is influenced by the amount and kind of clay in the soil. Shrinking and swelling of soils causes much damage to building foundations, roads, and other structures. A *high* shrink-swell potential indicates a hazard to maintenance of structures built in, on, or with material having this rating.

Risk of corrosion in table 6 pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. Risk of corrosion of uncoated steel is related to such soil properties as drainage, texture, total acidity, and electrical conductivity of the soil material. Corrosivity for concrete is influenced mainly by the content of sodium or magnesium sulfate, but it is also

[Soil characteristics in this table are expressed in computer-adapted terms differing from those in the Soil Survey Manual (*9*). Refer to the Glossary for definition of "area reclaim" and other terms that describe soil characteristics]

Soil series and map symbols	Road fill	Sand	Topsoil
Ailey: AeC, AeD	Good	Poor	Poor: too sandy.
Blanton: BaB, BaC	Good	Poor	Poor: too sandy.
Clarendon: Cd	Good	Poor	Fair: thin layer, wetness.
Dothan: DaA, DaB, DaC	Good	Poor	Fair: thin layer.
Dunbar: Db	Poor: shrink-swell, wetness	Poor	Poor: thin layer, wetness.
Dupin: DpA	Poor: low strength, shrink-swell	Poor	Fair: thin layer, wetness.
Faceville: FaB, FaC	Fair: shrink-swell	Poor	Fair: thin layer.
Fuquay: FuA, FuB, FuC	Good	Fair	Poor: too sandy.
Johnston: JO	Poor: wetness, excess humus	Poor	Poor: wetness.

TABLE 11.—*Water management*

[illegible]

the Glossary for definition of "cutbanks cave" and other terms that describe soil characteristics]

Soil series and map symbols	Limitations for— Pond reservoir areas	Embankments and dikes	Aquifer-fed excavated ponds	Features affecting— Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ailey: AeC, AeD	Slight	Miderate piping	Severe: no water.	Well drained	Seepage, droughty.	Erodes easily	Droughty, erodes easily.
Blanton: BaB, BaC	Severe: seepage.	Moderate: piping. seepage.	Severe: no water.	Well drained	Seepage, droughty.	Erodes easily	Droughty, erodes easily.
Clarendon: Cd	Moderate: seepage.	Moderate: piping. hard to pack.	Severe: deep to water.	Floods, wetness.	Wetness	Nearly level	Floods, wetness.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

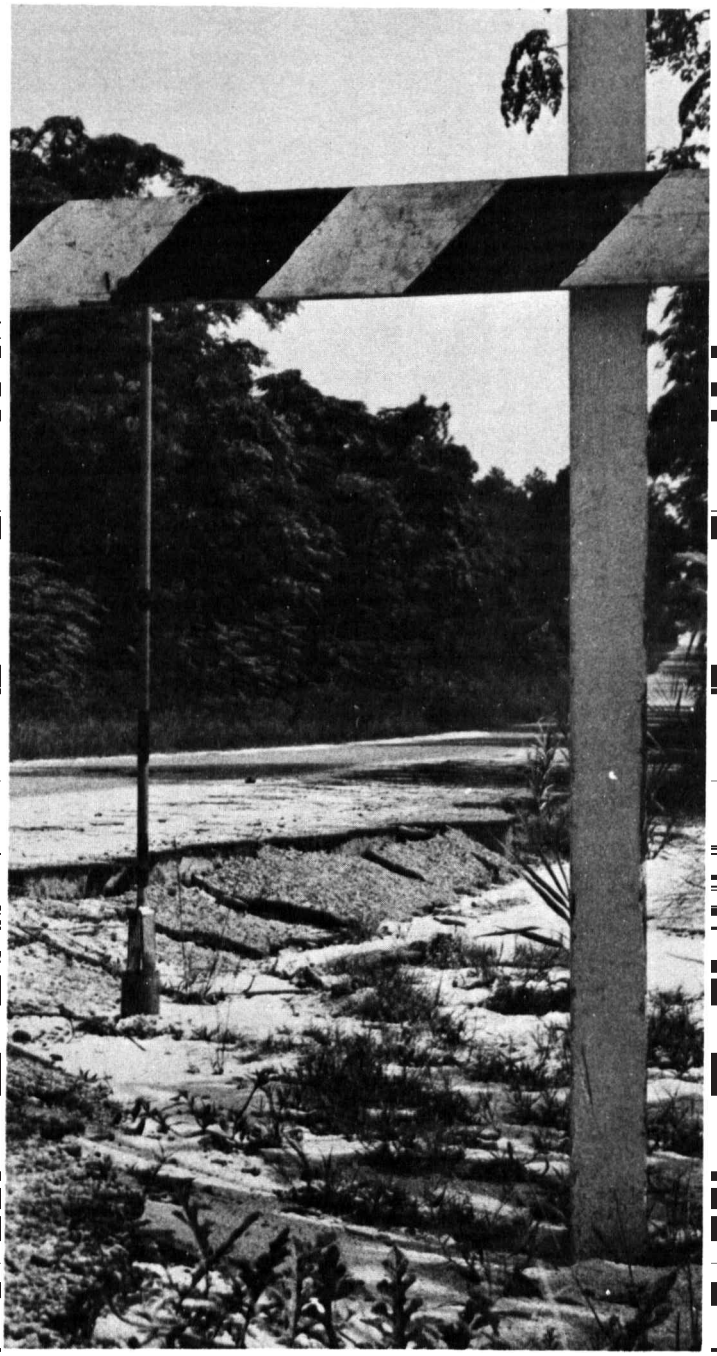
TABLE 12.—*Engineering test data*

[Tests performed by the South Carolina Highway Department in cooperation with the U.S. Department of Commerce, Bureau of Public Roads, according to standard procedures of the American Association of State Highway [and Transportation] Officials (AASHTO) (*1*)]

Soil name and location	Report No.	Depth	Mechanical analysis [1]			Liquid limit	Plasticity index	Classification	
			Percentage passing sieve—						
			No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)			AASHTO [2]	Unified [3]
	S67SC-6	*Inches*							
Dothan loamy sand:	9-1	0-6	100	88	20	--	([4])	A-2-4(0)	SM
1 mile west-southwest of Blackville and 1,400 yards west-southwest of dam on Edisto Experiment Station. (Modal)	9-3	14-22	100	88	37	23	9	A-4(0)	SC
	9-4	22-40	100	91	45	36	17	A-6(4)	SC
Dunbar sandy loam:	10-1	0-7	100	83	38	17	3	A-4(1)	SM
2 miles southwest of Blackville and 1 mile south of U.S. Highway 78. (Modal)	10-2	7-21	100	91	59	39	21	A-6(9)	CL
	10-3	21-45	100	93	71	46	17	A-7-6(11)	ML
Duplin sandy loam:	12-1	0-8	100	89	35	15	1	A-2-4(0)	SM
3½ miles southwest of Blackville, 1 mile west of State Park, and 10 yards north of dirt road. (Modal)	12-2	8-25	100	92	63	38	18	A-6(9)	CL
	12-5	40-72	100	90	71	53	25	A-7-6(15)	CH
Faceville loamy sand:	14-1	0-6	100	86	29	17	5	A-2-4(0)	SC-SM
1¾ miles southeast of Barnwell and 200 feet east of Southern Railroad in cultivated field. (Nonmodal, firm subsoil)	14-2	6-21	100	89	55	36	14	A-6(6)	CL
	14-4	26-39	100	90	56	41	15	A-7-6(6)	ML
Faceville loamy sand:	13-1	0-7	[5]98	81	24	--	([4])	A-2-4(0)	SM
2½ miles west of Blackville and 660 yards southwest of dam on Edisto Experiment Station. (Modal)	13-2	7-30	100	86	51	36	16	A-6(5)	CL
	13-3	30-50	[5]97	80	58	44	18	A-7-6(9)	ML
Fuquay sand:	1-1	0-8	100	75	12	--	([4])	A-2-4(0)	SP-SM
1½ miles southeast of Barnwell and 200 feet east of Southern Railroad. (Nonmodal, thick A horizon)	1-2	8-38	100	77	18	--	([4])	A-2-4(0)	SM
	1-4	41-53	100	82	35	27	14	A-2-6(1)	SC
Fuquay sand:	2-1	0-8	100	81	11	--	([4])	A-2-4(0)	SP-SM
3½ miles southwest of Blackville and 2 miles south of Edisto Experiment Station and 1½ miles west of Barnwell State Park. (Modal)	2-3	28-36	100	84	23	--	([4])	A-2-4(0)	SM
	2-5	42-53	100	83	36	28	8	A-4(0)	SC
Fuquay sand:									
4 miles northwest of Blackville and 200 yards north of U.S. Highway 78. (Nonmodal, thin A horizon)	3-1	0-9	100	76	9	--	([4])	A-3(0)	SP-SM
	3-2	9-13	100	76	14	--	([4])	A-2-4(0)	SM
	3-4	22-41	100	61	31	22	6	A-2-4(0)	SC-SM
	3-5	41-50	100	83	39	30	14	A-6(2)	SC
McColl loam:	4-1	0-8	100	86	29	18	5	A-2-4(0)	SC-SM
660 yards southwest of Headquarters, Edisto Experiment Station and 200 yards east of Shrub Branch Church.	4-3	9-16	100	85	39	25	9	A-4(1)	SC
	4-4	16-23	100	89	51	37	14	A-6(4)	CL
Varina loamy sand:	16-1	0-10	100	81	20	--	([4])	A-2-4(0)	SM
2 miles west of Blackville and 600 yards south of U.S. High-	16-3	12-26	100	87	45	29	12	A-6(3)	SC
way 78 (Nonmodal, thick A	16-4	26-62	100	87	44	35	11	A-6(2)	SC

TABLE 12.—*Engineering test data*—Continued

	Report	Depth	Mechanical analysis [1] Percentage passing sieve—	Liquid	Plasticity	Classification	



Septic-tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material from a depth of 18 inches to 6 feet is evaluated. The soil properties considered are those that affect both absorption of effluent and construction and operation of the system. Properties that affect absorption are permeability, depth to water table or rock, and susceptibility to flooding. Slope is a soil property that affects difficulty of layout and construction and also the risk of soil erosion, lateral seepage,

Sewage lagoons are shallow ponds constructed to hold sewage within a depth of 2 to 5 feet long enough for bacteria to decompose the solids. A lagoon has a nearly level floor and sides, or embankments, of compacted soil material. The assumption is made that the embankment is compacted to medium density and the pond is protected from flooding. Properties are considered that affect the pond floor and the embankment. Those that affect the pond floor are permeability, organic matter, and slope. If the floor needs to be leveled, depth to bedrock also becomes

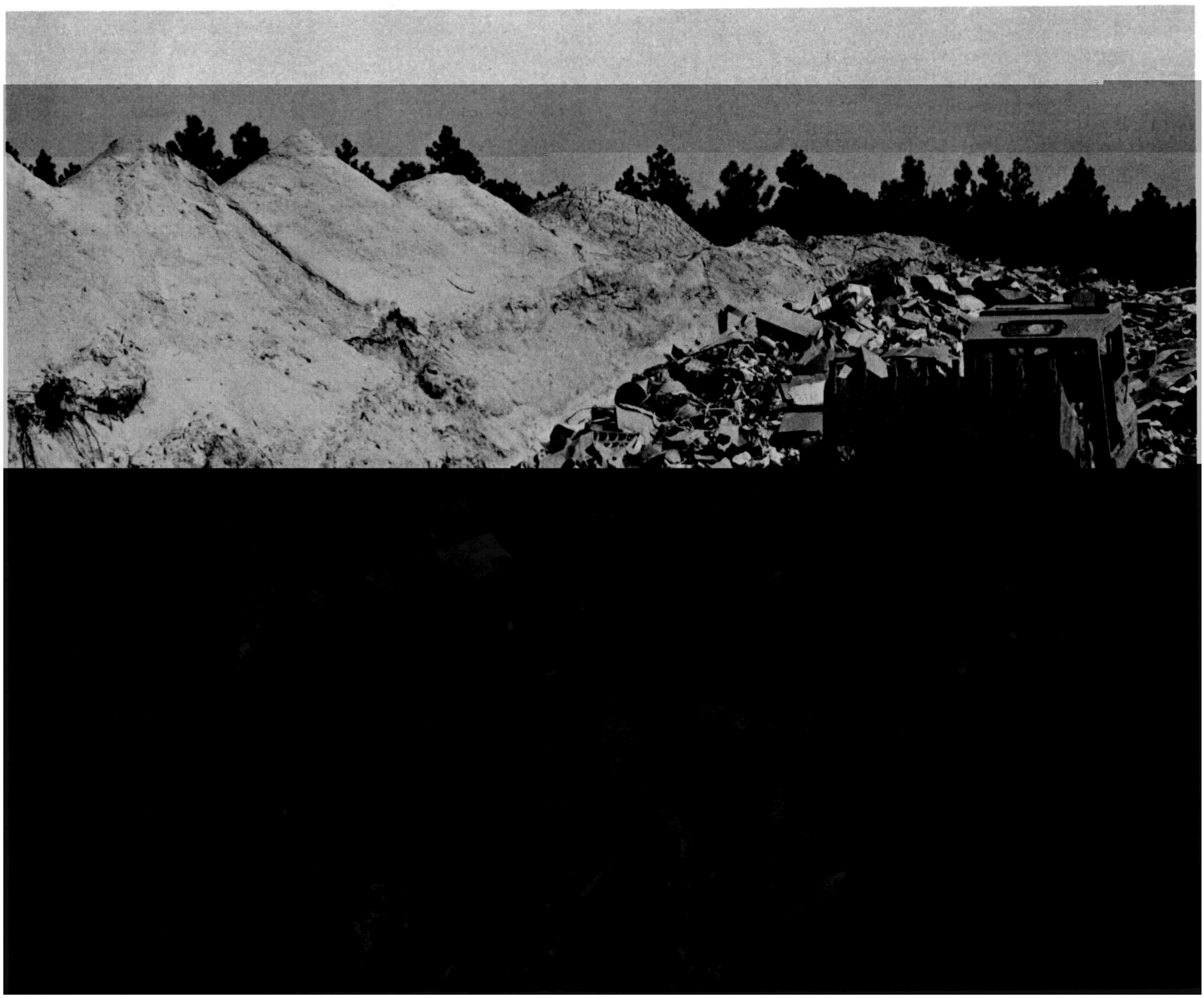


Figure 15.—This area of Lakeland sand, 6 to 10 percent slopes, has soil material at the bottom of the trench that is moderate in permeability.

material, as for preparing a seedbed; natural fertility of the material, or its response of plants when fertilizer is applied; and absence of substances toxic to plants. Texture of the soil material and its content of stone fragments

ence of stones and content of organic matter in a soil are among factors that are unfavorable.

Excavated ponds are dug ponds on nearly level soils. They depend on a spring or high water table to recharge

blowing; texture; content of stones; accumulations of salts and alkali; depth of root zone; rate of water intake at the surface; permeability of soil layers below the surface layer and in fragipans or other layers that restrict movement of water; amount of water held available to plants; and need for drainage, or depth to water table or bedrock.

Terraces and diversions are embankments or ridges constructed across the slope to intercept runoff and allow it to soak into the soil or flow slowly to a prepared outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock or other unfavorable material; presence of stones; permeability; and resistance to water erosion, soil slipping, and soil blowing. A soil suitable for these structures provides outlets for runoff and is not difficult to vegetate.

Grassed waterways are affected by severity of erosion, droughtiness, and natural drainage.

Soil test data

Table 12 contains engineering test data for some of the major soil series in Barnwell County, Eastern Part. These tests were made to help evaluate the soils for engineering purposes. The engineering classifications given are based on data obtained by mechanical analyses and by tests to determine liquid limits and plastic limits. The mechanical analyses were made by combined sieve and hydrometer methods.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a

living. Little preparation of the site is required, other than shaping and leveling for tent and parking areas. Camp areas are subject to heavy foot traffic and limited vehicular traffic. The best soils have mild slopes, good drainage, a surface free of rocks and coarse fragments, freedom from flooding during periods of heavy use, and a surface that is firm after rains but not dusty when dry.

Playgrounds are areas used intensively for baseball, football, badminton, and similar organized games. Soils suitable for this use need to be able to withstand intensive foot traffic. The best soils have a nearly level surface free of coarse fragments and rock outcrops, good drainage, freedom from flooding during periods of heavy use, and a surface that is firm after rains but not dusty when dry. If grading and leveling are required, depth to rock is important.

Picnic areas are attractive natural or landscaped tracts used primarily for preparing meals and eating outdoors. These areas are subject to heavy foot traffic. Most of the vehicular traffic, however, is confined to access roads. The best soils are firm when wet but not dusty when dry. They are free of flooding during the season of use, and they do not have slopes or characteristics of stoniness that greatly increase cost of leveling sites or of building access roads.

Paths and trails are used for local and cross-country travel by foot or horseback. Design and layout should require little or no cutting and filling. The best soils are at least moderately well drained, are firm when wet but not dusty when dry, are flooded not more than once during the season of use, have slopes of less than 15 percent, and have few or no rocks or stones on the surface.

Golf fairways

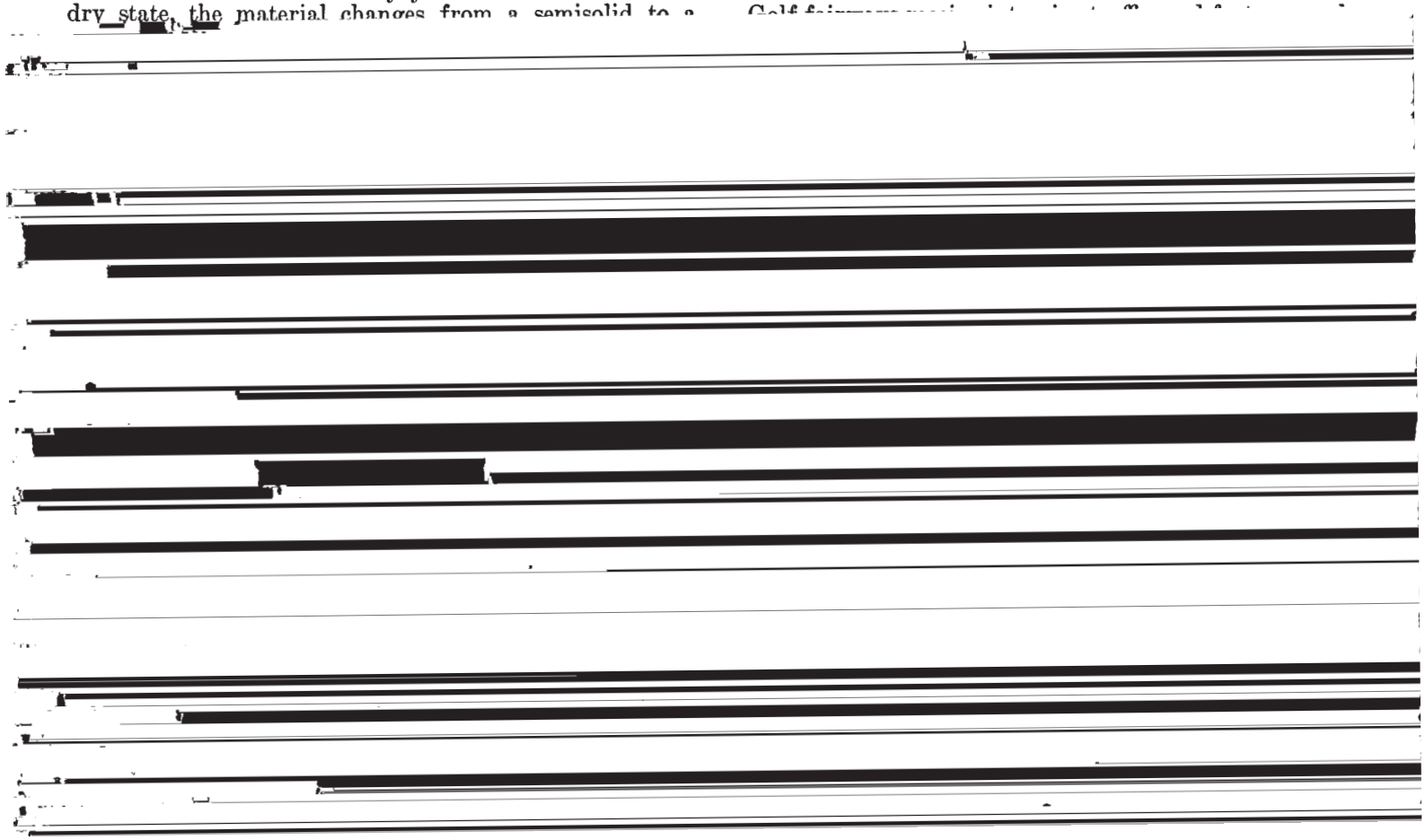


TABLE 13.—*Recreational development*

[Soil characteristics in this table are expressed in terminology adopted for use differing from those in the Soil Survey Manual. Refer to the Glossary for definition of "loamy sand" and other terms that describe soil characteristics]

Parent material

Parent material is the unconsolidated mass from which a soil forms. This material controls the texture and mineralogy of most of the soils that are formed from it. In Barnwell County, Eastern Part, the parent material is beds or strata of sandy to clayey Coastal Plain sediment. It has been deposited by the Atlantic Ocean and streams

Bacteria, fungi, and other micro-organisms are indispensable in soil formation. Larger plants alter the soil microclimate, furnish organic matter, and transfer chemical elements from the subsoil to the surface layer.

Most of the fungi, bacteria, and other micro-organisms in the soils of Barnwell County, Eastern Part, are in the upper few inches of the soil. The activity of earthworms

soil properties that are observable or measurable, but the properties are selected so that soils of similar genesis are grouped together. The placement of some soil series in the current system of classification, particularly in families, may change as more precise information becomes available.

Table 14 shows the classification of each soil series of Barnwell County, Eastern Part, by family, subgroup, and order, according to the current system. The categories of the current system are briefly described in the following paragraphs.

ORDER. Ten soil orders are recognized. The properties

or four syllables and are made by adding a prefix to the name of the suborder. An example is Ochraquults (*Ochr*, meaning light-colored horizons, *aqu* for wetness or water, and *ult*, from Ultisols).

SUBGROUP. Great groups are subdivided into subgroups, one representing the central (typic) segment of the group, and others called intergrades that have properties of the group and also one or more properties of another great group, suborder, or order. Subgroups may also be made in those instances where soil properties intergrade outside of the range of any other great group, suborder, or order. The names of subgroups are derived by placing one or

Climate [6]

The climate of Barnwell County, Eastern Part, is mild and temperate, and rainfall is well distributed throughout the year. The day-to-day weather is controlled largely by the march of pressure systems across the nation, although during the summer there are relatively few complete

light hours during the year, with percentages ranging from the low fifties during the winter to the low seventies during the summer. The skies are cloudy to overcast about 40 percent of the time. About 2 percent of the time the cloud bases are below 500 feet, and 6 percent of the time they are below 1,000 feet.

Summers are generally long, with warm weather lasting

TABLE 16—*Probabilities of last freezing temperature in spring and first in fall*

[All data from Blackville]

Probability	Dates for given probability and temperature		
	24° F or lower	28° F or lower	32° F or lower
Spring: 1 year in 10 later than	March 5	March 22	April 8
2 years in 10 later than	February 25	March 15	March 31
5 years in 10 later than	February 9	March 1	March 17
Fall: 1 year in 10 earlier than	November 21	November 12	November 3
2 years in 10 earlier than	November 27	November 17	November 8
5 years in 10 earlier than	December 8	November 27	November 18

TABLE 17.—*Probability of drought days on soils of different available water capacities*

Month [1]	Probability	Minimum number of drought days if soil has available water capacity [2]				
		1 inch	2 inches	3 inches	4 inches	5 inches
April.	1 in 10	16	9	0	0	0
	2 in 10	14	6	0	0	0
	3 in 10	12	0	0	0	0
	5 in 10	10	0	0	0	0
May.	1 in 10	26	25	20	15	9
	2 in 10	23	21	16	11	0
	3 in 10	21	18	14	8	0
	5 in 10	18	14	9	0	0
June.	1 in 10	22	20	20	18	16
	2 in 10	20	17	16	14	12
	3 in 10	18	15	13	11	9
	5 in 10	15	11	8	6	0
July.	1 in 10	21	18	17	16	15
	2 in 10	18	14	13	12	10
	3 in 10	15	11	10	8	7
	5 in 10	11	6	5	0	0
August.	1 in 10	19	15	11	10	8
	2 in 10	16	11	7	5	0
	3 in 10	14	8	5	0	0
	5 in 10	11	0	0	0	0
September.	1 in 10	22	20	16	15	13
	2 in 10	19	16	12	10	7
	3 in 10	16	13	8	6	0
	5 in 10	13	7	0	0	0
October.	1 in 10	26	25	23	21	17
	2 in 10	22	19	15	12	9
	3 in 10	19	15	10	5	0
	5 in 10	15	8	0	0	0

[1] Months of January, February, March, November, and December are not shown because crops are rarely damaged by drought in these months.

[2] Available water capacity expressed as inches of water.

casualties were negligible. The fall rainfall is about 19 percent of the annual total.

People in the area enjoy mild and relatively short winters, with freezing temperatures recorded only about one-third of the winter days. On only 5 days in the last 30 years have maximum temperatures of 32° or lower occurred at Blackville. Generally there is a good chance of snow flurries during the winter but only occasionally will a significant snowfall occur. Thus, extended periods with significant snow cover, such as the 12 inches of snow in February of 1973, are unusual. For 30 consecutive years winter has averaged about 4 days with temperatures of 20° and below, and less than 1 day has had a temperature of 15° or less. Only infrequently will a reading of less than 10° F be observed. The winter rains are usually steady, with about 23 percent of the annual precipitation falling during this season.

Spring, the most changeable period of the year, varies from frequently cold and windy in March to generally warm and pleasant in May. This is the season when severe local thunderstorms and tornadoes are most frequently observed in South Carolina. Barnwell County, Eastern Part, has experienced five tornadoes in the last 53 years. The spring rainfall represents about 25 percent of the annual total.

Climatic data for the survey area are summarized in tables 15, 16, and 17.

Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

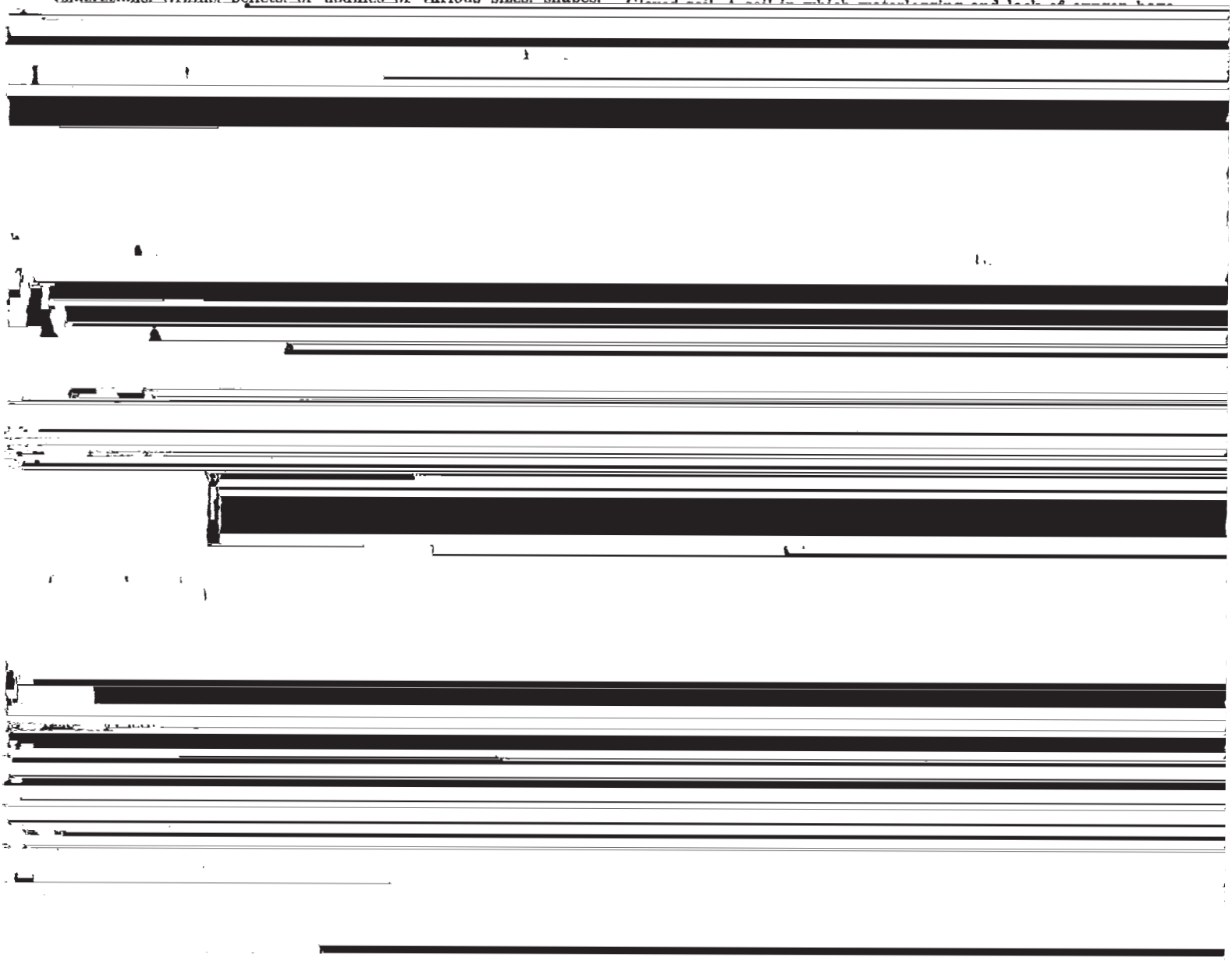
Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coat, clay skin.

Compressible. The soil is relatively soft and decreases excessively in volume when a load is applied.

Concretions. Grains, pellets, or nodules of various sizes, shapes,

Flood plain. Nearly level land, consisting of stream sediments, that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic-matter content and clay but is rich in silt or very fine sand. The layer is seemingly cemented. When dry, it is hard or very hard and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.



Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil and carbon, hydrogen, and oxygen obtained largely from the air and water, are plant nutrients.

Organic matter. A general term for plant and animal material, in or on the soil, in all stages of decomposition. Readily decomposed organic matter is often distinguished from the more stable forms that are past the stage of rapid decomposition.

Parent material. Disintegrated and partly weathered rock from which soil has formed.

Ped. An individual natural soil aggregate, [illegible]

Site index. A numerical means of expressing the quality of a forest site that is based on the height of the dominant stand at an arbitrarily chosen age; for example, the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years.

Slow intake. Water infiltrates slowly into the soil.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Gen-

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, including information on use and management, read both the description of the mapping unit and the description of the soil series to which the mapping unit belongs. The capability classification is explained in pages 23 to 25.

Map symbol	Mapping unit	Described on page	Capability written Symbol	Woodland suitability group Symbol
AeC	Ailey sand, 6 to 10 percent slopes	6	IVs-2	4s2
AeD	Ailey sand, 10 to 15 percent slopes	6	VIe-1	4s2
BaB	Blanton sand, 0 to 6 percent slopes	7	IIIs-1	3s2
BaC	Blanton sand, 6 to 10 percent slopes	7	IVe-1	3s2
Cd	Clarendon loamy sand	8	IIw-2	2w8
DaA	Dothan loamy sand, 0 to 2 percent slopes	9	IIs-2	2o1
DaB	Dothan loamy sand, 2 to 6 percent slopes	9	IIe-5	2o1
DaC	Dothan loamy sand, 6 to 10 percent slopes	9	IIIe-1	2o1
Db	Dunbar sandy loam	10	IIw-5	2w8
DpA	Duplin sandy loam, 0 to 2 percent slopes	11	IIw-5	2w8
FaB	Faceville loamy sand, 2 to 6 percent slopes	12	IIe-2	3o1
FaC	Faceville loamy sand, 6 to 10 percent slopes	12	IIIe-2	3o1
FuA	Fuquay sand, 0 to 2 percent slopes	12	IIs-1	3s2
FuB	Fuquay sand, 2 to 6 percent slopes	12	IIs-1	3s2
FuC	Fuquay sand, 6 to 10 percent slopes	13	IIIe-5	3s2
JO	Johnston soils	13	VIIw-3	1w9
LaB	Lakeland sand, 0 to 6 percent slopes	14	IVs-1	4s2
LaC	Lakeland sand, 6 to 10 percent slopes	14	VIs-1	4s2
Lu	Lumbee loamy sand	15	IIIw-4 drained Vw-1 undrained	2w9
Mc	McColl loam	15	IIIw-2 drained Vw-1 undrained	2w9
OrA	Orangeburg loamy sand, 0 to 2 percent slopes	16	I-1	2o1
OrB	Orangeburg loamy sand, 2 to 6 percent slopes	17	IIe-1	2o1
OrC	Orangeburg loamy sand, 6 to 10 percent slopes	17	IIIe-1	2o1
Pe	Pelham sand	17	IVw-3	2w3
Pu	Plummer loamy sand	18	IVw-3	2w3
Re	Rembert loam	18	IIIw-2 drained Vw-1 undrained	2w9
VaA	Varina loamy sand, 0 to 2 percent slopes	19	IIs-2	3o1
VaB	Varina loamy sand, 2 to 6 percent slopes	19	IIe-2	3o1
VaC	Varina loamy sand, 6 to 10 percent slopes	19	IIIe-2	3o1
VcB	Vaucluse loamy sand, 2 to 6 percent slopes	20	IIIe-4	3o1
VcC	Vaucluse loamy sand, 6 to 10 percent slopes	20	IVe-4	3o1
VcD	Vaucluse soils, 10 to 25 percent slopes	21	VIe-1	3o1

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